*Table 9. Built-up area class; Image A, F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 16 | 0.481 | 0.342 | 0.399 | 0.533 | 0.370 | 0.437 | 0.544 | 0.375 | 0.444 | 0.546 | 0.381 | 0.449 | 0.566 | 0.372 | 0.449 | 0.532 | 0.346 | 0.419 | 0.516 | 0.278 | 0.361 | 0.614 | 0.326 | 0.426 | 0.481 | 0.342 | 0.399 |
| 200 | 36 | 0.545 | 0.491 | 0.517 | 0.539 | 0.512 | 0.525 | 0.543 | 0.514 | 0.528 | 0.547 | 0.512 | 0.529 | 0.564 | 0.513 | 0.537 | 0.576 | 0.491 | 0.530 | 0.559 | 0.331 | 0.416 | 0.605 | 0.483 | 0.537 | 0.545 | 0.491 | 0.517 |
| 300 | 45 | 0.573 | 0.489 | 0.528 | 0.578 | 0.496 | 0.534 | 0.579 | 0.502 | 0.537 | 0.578 | 0.509 | 0.542 | 0.612 | 0.483 | 0.539 | 0.593 | 0.497 | 0.540 | 0.586 | 0.325 | 0.419 | 0.690 | 0.428 | 0.528 | 0.573 | 0.489 | 0.528 |
| 500 | 78 | 0.632 | 0.525 | 0.574 | 0.627 | 0.529 | 0.574 | 0.635 | 0.529 | 0.577 | 0.630 | 0.538 | 0.580 | 0.630 | 0.548 | 0.586 | 0.655 | 0.532 | 0.587 | 0.615 | 0.315 | 0.416 | 0.683 | 0.497 | 0.575 | 0.632 | 0.525 | 0.574 |
| 700 | 116 | 0.630 | 0.526 | 0.573 | 0.609 | 0.528 | 0.566 | 0.621 | 0.534 | 0.574 | 0.620 | 0.541 | 0.578 | 0.639 | 0.537 | 0.584 | 0.658 | 0.530 | 0.587 | 0.610 | 0.352 | 0.446 | 0.679 | 0.500 | 0.576 | 0.630 | 0.526 | 0.573 |
| 1000 | 160 | 0.651 | 0.532 | 0.586 | 0.636 | 0.540 | 0.584 | 0.625 | 0.548 | 0.584 | 0.617 | 0.548 | 0.581 | 0.656 | 0.560 | 0.604 | 0.658 | 0.559 | 0.604 | 0.627 | 0.363 | 0.460 | 0.699 | 0.507 | 0.587 | 0.651 | 0.532 | 0.586 |
| 1500 | 252 | 0.691 | 0.546 | 0.610 | 0.668 | 0.556 | 0.607 | 0.662 | 0.554 | 0.603 | 0.650 | 0.565 | 0.604 | 0.669 | 0.585 | 0.624 | 0.674 | 0.578 | 0.622 | 0.649 | 0.446 | 0.529 | 0.705 | 0.548 | 0.617 | 0.691 | 0.546 | 0.610 |
| 2000 | 346 | 0.703 | 0.553 | 0.619 | 0.685 | 0.574 | 0.624 | 0.679 | 0.571 | 0.620 | 0.674 | 0.575 | 0.621 | 0.684 | 0.591 | 0.634 | 0.680 | 0.597 | 0.636 | 0.673 | 0.425 | 0.521 | 0.715 | 0.554 | 0.624 | 0.703 | 0.553 | 0.619 |
| 3000 | 531 | 0.735 | 0.570 | 0.642 | 0.706 | 0.580 | 0.637 | 0.698 | 0.580 | 0.633 | 0.687 | 0.582 | 0.630 | 0.699 | 0.602 | 0.647 | 0.705 | 0.604 | 0.651 | 0.704 | 0.406 | 0.515 | 0.717 | 0.582 | 0.642 | 0.735 | 0.570 | 0.642 |
| 5000 | 892 | 0.733 | 0.597 | 0.658 | 0.713 | 0.612 | 0.659 | 0.701 | 0.617 | 0.657 | 0.691 | 0.619 | 0.653 | 0.691 | 0.632 | 0.660 | 0.696 | 0.637 | 0.665 | 0.729 | 0.480 | 0.579 | 0.715 | 0.595 | 0.650 | 0.733 | 0.597 | 0.658 |
| 7000 | 1258 | 0.742 | 0.595 | 0.661 | 0.727 | 0.617 | 0.668 | 0.709 | 0.619 | 0.661 | 0.699 | 0.626 | 0.661 | 0.702 | 0.637 | 0.668 | 0.706 | 0.634 | 0.668 | 0.689 | 0.489 | 0.572 | 0.707 | 0.575 | 0.634 | 0.742 | 0.595 | 0.661 |
| 10000 | 1792 | 0.749 | 0.597 | 0.664 | 0.735 | 0.619 | 0.672 | 0.721 | 0.621 | 0.667 | 0.709 | 0.621 | 0.662 | 0.707 | 0.633 | 0.668 | 0.712 | 0.636 | 0.672 | 0.688 | 0.464 | 0.554 | 0.727 | 0.571 | 0.640 | 0.749 | 0.597 | 0.664 |
| 15000 | 2689 | 0.756 | 0.600 | 0.669 | 0.748 | 0.615 | 0.675 | 0.734 | 0.622 | 0.673 | 0.719 | 0.626 | 0.669 | 0.708 | 0.641 | 0.673 | 0.714 | 0.639 | 0.674 | 0.704 | 0.493 | 0.580 | 0.740 | 0.583 | 0.652 | 0.756 | 0.600 | 0.669 |
| 25000 | 4411 | 0.762 | 0.598 | 0.670 | 0.752 | 0.621 | 0.680 | 0.747 | 0.627 | 0.682 | 0.734 | 0.629 | 0.678 | 0.718 | 0.640 | 0.677 | 0.722 | 0.641 | 0.679 | 0.698 | 0.539 | 0.608 | 0.749 | 0.573 | 0.649 | 0.762 | 0.598 | 0.670 |
| 30000 | 5279 | 0.760 | 0.596 | 0.668 | 0.756 | 0.621 | 0.682 | 0.752 | 0.627 | 0.684 | 0.737 | 0.629 | 0.679 | 0.721 | 0.638 | 0.677 | 0.727 | 0.640 | 0.681 | 0.708 | 0.486 | 0.577 | 0.748 | 0.562 | 0.642 | 0.760 | 0.596 | 0.668 |
| 50000 | 8749 | 0.769 | 0.598 | 0.673 | 0.764 | 0.627 | 0.689 | 0.759 | 0.633 | 0.691 | 0.748 | 0.638 | 0.689 | 0.726 | 0.648 | 0.684 | 0.732 | 0.646 | 0.686 | 0.701 | 0.449 | 0.548 | 0.730 | 0.578 | 0.645 | 0.769 | 0.598 | 0.673 |
| 75000 | 13212 | 0.767 | 0.602 | 0.675 | 0.764 | 0.633 | 0.692 | 0.760 | 0.642 | 0.696 | 0.752 | 0.644 | 0.693 | 0.729 | 0.653 | 0.689 | 0.731 | 0.652 | 0.689 | 0.729 | 0.509 | 0.599 | 0.738 | 0.568 | 0.642 | 0.767 | 0.602 | 0.675 |
| 100000 | 17632 | 0.769 | 0.604 | 0.677 | 0.768 | 0.632 | 0.693 | 0.764 | 0.640 | 0.696 | 0.757 | 0.643 | 0.695 | 0.730 | 0.652 | 0.689 | 0.735 | 0.652 | 0.691 | 0.688 | 0.518 | 0.591 | 0.737 | 0.587 | 0.654 | 0.769 | 0.604 | 0.677 |
| 150000 | 26671 | 0.770 | 0.605 | 0.678 | 0.767 | 0.633 | 0.694 | 0.766 | 0.642 | 0.699 | 0.758 | 0.647 | 0.698 | 0.728 | 0.655 | 0.690 | 0.735 | 0.652 | 0.691 | 0.725 | 0.509 | 0.598 | 0.753 | 0.574 | 0.651 | 0.770 | 0.605 | 0.678 |
| 200000 | 35635 | 0.773 | 0.591 | 0.669 | 0.766 | 0.620 | 0.685 | 0.767 | 0.633 | 0.694 | 0.759 | 0.636 | 0.692 | 0.725 | 0.632 | 0.676 | 0.725 | 0.631 | 0.675 | 0.689 | 0.526 | 0.596 | 0.718 | 0.489 | 0.582 | 0.773 | 0.591 | 0.669 |

*Table 10. Built-up area class; Image B, F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 14 | 0.528 | 0.463 | 0.493 | 0.529 | 0.450 | 0.486 | 0.529 | 0.438 | 0.479 | 0.530 | 0.433 | 0.477 | 0.601 | 0.416 | 0.492 | 0.599 | 0.442 | 0.509 | 0.663 | 0.231 | 0.342 | 0.665 | 0.402 | 0.501 | 0.674 | 0.453 | 0.542 |
| 200 | 33 | 0.500 | 0.540 | 0.519 | 0.512 | 0.542 | 0.527 | 0.503 | 0.544 | 0.523 | 0.505 | 0.550 | 0.526 | 0.614 | 0.542 | 0.576 | 0.562 | 0.576 | 0.569 | 0.536 | 0.296 | 0.381 | 0.650 | 0.514 | 0.574 | 0.652 | 0.571 | 0.609 |
| 300 | 44 | 0.587 | 0.561 | 0.574 | 0.586 | 0.559 | 0.572 | 0.575 | 0.569 | 0.572 | 0.580 | 0.573 | 0.577 | 0.616 | 0.557 | 0.585 | 0.647 | 0.546 | 0.592 | 0.621 | 0.352 | 0.449 | 0.649 | 0.497 | 0.563 | 0.688 | 0.566 | 0.621 |
| 500 | 75 | 0.653 | 0.582 | 0.615 | 0.652 | 0.572 | 0.610 | 0.651 | 0.576 | 0.611 | 0.647 | 0.583 | 0.613 | 0.681 | 0.549 | 0.608 | 0.675 | 0.554 | 0.609 | 0.686 | 0.396 | 0.502 | 0.706 | 0.532 | 0.607 | 0.718 | 0.582 | 0.643 |
| 700 | 99 | 0.704 | 0.552 | 0.619 | 0.692 | 0.547 | 0.611 | 0.672 | 0.548 | 0.604 | 0.660 | 0.556 | 0.604 | 0.719 | 0.540 | 0.617 | 0.721 | 0.544 | 0.620 | 0.700 | 0.350 | 0.467 | 0.726 | 0.513 | 0.601 | 0.749 | 0.557 | 0.639 |
| 1000 | 151 | 0.704 | 0.574 | 0.633 | 0.708 | 0.573 | 0.634 | 0.699 | 0.570 | 0.628 | 0.692 | 0.571 | 0.626 | 0.705 | 0.571 | 0.631 | 0.722 | 0.567 | 0.635 | 0.702 | 0.376 | 0.490 | 0.648 | 0.547 | 0.593 | 0.729 | 0.567 | 0.637 |
| 1500 | 228 | 0.709 | 0.593 | 0.646 | 0.694 | 0.598 | 0.643 | 0.694 | 0.596 | 0.642 | 0.691 | 0.601 | 0.643 | 0.711 | 0.590 | 0.645 | 0.719 | 0.595 | 0.651 | 0.721 | 0.312 | 0.435 | 0.707 | 0.571 | 0.631 | 0.760 | 0.598 | 0.669 |
| 2000 | 302 | 0.729 | 0.597 | 0.656 | 0.707 | 0.597 | 0.647 | 0.702 | 0.594 | 0.643 | 0.696 | 0.593 | 0.640 | 0.713 | 0.598 | 0.651 | 0.727 | 0.593 | 0.654 | 0.664 | 0.408 | 0.505 | 0.716 | 0.560 | 0.629 | 0.770 | 0.589 | 0.667 |
| 3000 | 471 | 0.717 | 0.631 | 0.671 | 0.703 | 0.630 | 0.664 | 0.699 | 0.627 | 0.661 | 0.696 | 0.625 | 0.659 | 0.707 | 0.629 | 0.666 | 0.717 | 0.625 | 0.668 | 0.664 | 0.409 | 0.506 | 0.698 | 0.585 | 0.636 | 0.751 | 0.603 | 0.669 |
| 5000 | 779 | 0.732 | 0.637 | 0.681 | 0.718 | 0.636 | 0.674 | 0.702 | 0.637 | 0.668 | 0.704 | 0.635 | 0.667 | 0.711 | 0.637 | 0.672 | 0.719 | 0.640 | 0.677 | 0.675 | 0.447 | 0.538 | 0.702 | 0.499 | 0.583 | 0.756 | 0.597 | 0.667 |
| 7000 | 1105 | 0.742 | 0.642 | 0.689 | 0.731 | 0.637 | 0.681 | 0.718 | 0.640 | 0.676 | 0.713 | 0.637 | 0.673 | 0.714 | 0.647 | 0.679 | 0.718 | 0.651 | 0.683 | 0.714 | 0.466 | 0.564 | 0.727 | 0.566 | 0.636 | 0.759 | 0.615 | 0.680 |
| 10000 | 1621 | 0.753 | 0.634 | 0.689 | 0.739 | 0.639 | 0.686 | 0.723 | 0.644 | 0.682 | 0.714 | 0.642 | 0.677 | 0.723 | 0.650 | 0.685 | 0.727 | 0.650 | 0.686 | 0.681 | 0.525 | 0.593 | 0.705 | 0.551 | 0.619 | 0.774 | 0.613 | 0.684 |
| 15000 | 2405 | 0.763 | 0.632 | 0.692 | 0.749 | 0.639 | 0.690 | 0.745 | 0.639 | 0.688 | 0.739 | 0.639 | 0.686 | 0.731 | 0.648 | 0.687 | 0.737 | 0.647 | 0.690 | 0.702 | 0.475 | 0.567 | 0.735 | 0.567 | 0.640 | 0.783 | 0.620 | 0.692 |
| 25000 | 4018 | 0.778 | 0.631 | 0.697 | 0.765 | 0.641 | 0.698 | 0.754 | 0.647 | 0.696 | 0.745 | 0.647 | 0.693 | 0.733 | 0.654 | 0.691 | 0.739 | 0.655 | 0.694 | 0.714 | 0.447 | 0.550 | 0.767 | 0.557 | 0.645 | 0.792 | 0.607 | 0.687 |
| 30000 | 4812 | 0.779 | 0.631 | 0.697 | 0.773 | 0.639 | 0.700 | 0.759 | 0.645 | 0.698 | 0.750 | 0.650 | 0.696 | 0.737 | 0.655 | 0.694 | 0.741 | 0.657 | 0.696 | 0.723 | 0.441 | 0.548 | 0.644 | 0.642 | 0.643 | 0.779 | 0.612 | 0.685 |
| 50000 | 8017 | 0.783 | 0.630 | 0.698 | 0.774 | 0.648 | 0.705 | 0.766 | 0.652 | 0.705 | 0.757 | 0.654 | 0.702 | 0.738 | 0.663 | 0.698 | 0.744 | 0.662 | 0.700 | 0.710 | 0.461 | 0.559 | 0.761 | 0.542 | 0.633 | 0.787 | 0.609 | 0.687 |
| 75000 | 11990 | 0.784 | 0.633 | 0.700 | 0.777 | 0.648 | 0.706 | 0.771 | 0.653 | 0.707 | 0.761 | 0.658 | 0.705 | 0.738 | 0.666 | 0.700 | 0.744 | 0.664 | 0.702 | 0.720 | 0.473 | 0.571 | 0.736 | 0.586 | 0.652 | 0.786 | 0.624 | 0.695 |
| 100000 | 15928 | 0.784 | 0.638 | 0.704 | 0.777 | 0.655 | 0.711 | 0.776 | 0.658 | 0.712 | 0.767 | 0.660 | 0.709 | 0.741 | 0.669 | 0.703 | 0.748 | 0.669 | 0.706 | 0.724 | 0.413 | 0.526 | 0.736 | 0.590 | 0.655 | 0.783 | 0.626 | 0.696 |
| 150000 | 23906 | 0.789 | 0.635 | 0.704 | 0.787 | 0.652 | 0.713 | 0.780 | 0.658 | 0.714 | 0.773 | 0.661 | 0.713 | 0.742 | 0.669 | 0.703 | 0.749 | 0.668 | 0.706 | 0.686 | 0.492 | 0.573 | 0.688 | 0.619 | 0.652 | 0.779 | 0.625 | 0.694 |
| 200000 | 31902 | 0.791 | 0.637 | 0.706 | 0.784 | 0.653 | 0.712 | 0.779 | 0.659 | 0.714 | 0.773 | 0.662 | 0.713 | 0.738 | 0.670 | 0.702 | 0.745 | 0.669 | 0.705 | 0.744 | 0.460 | 0.568 | 0.723 | 0.601 | 0.656 | 0.786 | 0.621 | 0.694 |

*Table 11. Built-up area class; Image C, F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 9 | 0.654 | 0.370 | 0.472 | 0.675 | 0.366 | 0.475 | 0.649 | 0.375 | 0.475 | 0.649 | 0.375 | 0.475 | 0.629 | 0.366 | 0.463 | 0.636 | 0.396 | 0.488 | 0.491 | 0.191 | 0.275 | 0.599 | 0.332 | 0.427 | 0.712 | 0.442 | 0.546 |
| 200 | 23 | 0.614 | 0.461 | 0.526 | 0.595 | 0.398 | 0.477 | 0.584 | 0.397 | 0.473 | 0.582 | 0.400 | 0.474 | 0.593 | 0.392 | 0.472 | 0.602 | 0.379 | 0.465 | 0.548 | 0.217 | 0.311 | 0.610 | 0.302 | 0.404 | 0.716 | 0.356 | 0.476 |
| 300 | 38 | 0.633 | 0.515 | 0.568 | 0.649 | 0.516 | 0.575 | 0.650 | 0.529 | 0.583 | 0.648 | 0.518 | 0.576 | 0.610 | 0.497 | 0.548 | 0.624 | 0.511 | 0.562 | 0.647 | 0.289 | 0.400 | 0.677 | 0.402 | 0.504 | 0.685 | 0.447 | 0.541 |
| 500 | 72 | 0.616 | 0.623 | 0.620 | 0.617 | 0.603 | 0.610 | 0.621 | 0.603 | 0.612 | 0.622 | 0.594 | 0.608 | 0.665 | 0.599 | 0.630 | 0.642 | 0.601 | 0.621 | 0.639 | 0.397 | 0.490 | 0.634 | 0.491 | 0.554 | 0.690 | 0.610 | 0.647 |
| 700 | 97 | 0.654 | 0.593 | 0.622 | 0.647 | 0.591 | 0.618 | 0.654 | 0.586 | 0.619 | 0.648 | 0.595 | 0.621 | 0.684 | 0.587 | 0.632 | 0.683 | 0.573 | 0.623 | 0.593 | 0.275 | 0.375 | 0.687 | 0.491 | 0.573 | 0.719 | 0.595 | 0.651 |
| 1000 | 140 | 0.677 | 0.611 | 0.643 | 0.672 | 0.595 | 0.631 | 0.675 | 0.597 | 0.634 | 0.671 | 0.601 | 0.634 | 0.681 | 0.600 | 0.638 | 0.689 | 0.599 | 0.641 | 0.602 | 0.382 | 0.468 | 0.670 | 0.519 | 0.585 | 0.702 | 0.581 | 0.635 |
| 1500 | 215 | 0.694 | 0.632 | 0.662 | 0.687 | 0.620 | 0.652 | 0.681 | 0.622 | 0.650 | 0.684 | 0.619 | 0.650 | 0.709 | 0.623 | 0.663 | 0.705 | 0.630 | 0.665 | 0.635 | 0.417 | 0.504 | 0.709 | 0.528 | 0.605 | 0.710 | 0.638 | 0.672 |
| 2000 | 287 | 0.702 | 0.630 | 0.664 | 0.686 | 0.625 | 0.654 | 0.682 | 0.630 | 0.655 | 0.680 | 0.628 | 0.653 | 0.703 | 0.629 | 0.664 | 0.696 | 0.637 | 0.665 | 0.670 | 0.402 | 0.503 | 0.666 | 0.561 | 0.609 | 0.714 | 0.627 | 0.668 |
| 3000 | 437 | 0.699 | 0.655 | 0.676 | 0.693 | 0.648 | 0.670 | 0.684 | 0.642 | 0.663 | 0.684 | 0.646 | 0.665 | 0.694 | 0.658 | 0.675 | 0.703 | 0.650 | 0.676 | 0.648 | 0.488 | 0.557 | 0.682 | 0.574 | 0.623 | 0.721 | 0.619 | 0.666 |
| 5000 | 741 | 0.713 | 0.652 | 0.681 | 0.706 | 0.650 | 0.677 | 0.696 | 0.651 | 0.673 | 0.689 | 0.653 | 0.670 | 0.700 | 0.655 | 0.677 | 0.700 | 0.654 | 0.676 | 0.574 | 0.603 | 0.588 | 0.681 | 0.633 | 0.656 | 0.736 | 0.640 | 0.684 |
| 7000 | 1003 | 0.739 | 0.641 | 0.686 | 0.727 | 0.640 | 0.681 | 0.716 | 0.639 | 0.675 | 0.704 | 0.641 | 0.671 | 0.710 | 0.649 | 0.679 | 0.717 | 0.644 | 0.679 | 0.661 | 0.485 | 0.559 | 0.694 | 0.629 | 0.660 | 0.748 | 0.608 | 0.670 |
| 10000 | 1410 | 0.735 | 0.645 | 0.687 | 0.737 | 0.641 | 0.686 | 0.727 | 0.642 | 0.682 | 0.719 | 0.644 | 0.679 | 0.716 | 0.651 | 0.682 | 0.720 | 0.651 | 0.683 | 0.555 | 0.671 | 0.607 | 0.636 | 0.624 | 0.630 | 0.750 | 0.628 | 0.683 |
| 15000 | 2149 | 0.747 | 0.652 | 0.696 | 0.744 | 0.651 | 0.694 | 0.736 | 0.648 | 0.689 | 0.724 | 0.651 | 0.686 | 0.720 | 0.660 | 0.688 | 0.725 | 0.662 | 0.692 | 0.690 | 0.448 | 0.543 | 0.694 | 0.616 | 0.653 | 0.752 | 0.639 | 0.691 |
| 25000 | 3618 | 0.749 | 0.662 | 0.703 | 0.753 | 0.659 | 0.703 | 0.746 | 0.658 | 0.699 | 0.735 | 0.661 | 0.696 | 0.722 | 0.670 | 0.695 | 0.730 | 0.668 | 0.698 | 0.688 | 0.412 | 0.515 | 0.694 | 0.628 | 0.660 | 0.750 | 0.617 | 0.677 |
| 30000 | 4373 | 0.749 | 0.666 | 0.705 | 0.754 | 0.670 | 0.710 | 0.749 | 0.667 | 0.706 | 0.738 | 0.666 | 0.700 | 0.725 | 0.674 | 0.698 | 0.729 | 0.673 | 0.700 | 0.697 | 0.515 | 0.592 | 0.708 | 0.583 | 0.640 | 0.735 | 0.641 | 0.685 |
| 50000 | 7327 | 0.746 | 0.674 | 0.708 | 0.749 | 0.678 | 0.712 | 0.749 | 0.674 | 0.710 | 0.740 | 0.675 | 0.706 | 0.720 | 0.682 | 0.700 | 0.725 | 0.679 | 0.702 | 0.651 | 0.391 | 0.488 | 0.666 | 0.650 | 0.658 | 0.747 | 0.633 | 0.685 |
| 75000 | 10995 | 0.746 | 0.676 | 0.710 | 0.751 | 0.680 | 0.714 | 0.748 | 0.681 | 0.713 | 0.745 | 0.678 | 0.710 | 0.724 | 0.687 | 0.705 | 0.729 | 0.686 | 0.707 | 0.610 | 0.515 | 0.559 | 0.698 | 0.591 | 0.640 | 0.744 | 0.659 | 0.699 |
| 100000 | 14672 | 0.749 | 0.677 | 0.711 | 0.754 | 0.683 | 0.716 | 0.754 | 0.680 | 0.715 | 0.747 | 0.682 | 0.713 | 0.727 | 0.689 | 0.708 | 0.730 | 0.687 | 0.708 | 0.664 | 0.518 | 0.582 | 0.690 | 0.620 | 0.653 | 0.751 | 0.646 | 0.695 |
| 150000 | 22019 | 0.748 | 0.680 | 0.712 | 0.752 | 0.685 | 0.717 | 0.754 | 0.684 | 0.718 | 0.751 | 0.687 | 0.718 | 0.730 | 0.692 | 0.711 | 0.733 | 0.692 | 0.712 | 0.537 | 0.674 | 0.598 | 0.709 | 0.612 | 0.657 | 0.753 | 0.640 | 0.692 |
| 200000 | 29226 | 0.752 | 0.676 | 0.712 | 0.759 | 0.682 | 0.718 | 0.761 | 0.682 | 0.720 | 0.758 | 0.683 | 0.719 | 0.734 | 0.692 | 0.712 | 0.739 | 0.690 | 0.714 | 0.565 | 0.622 | 0.592 | 0.679 | 0.641 | 0.659 | 0.746 | 0.642 | 0.690 |

*Table 12. Soil class, Image A; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 35 | 0.709 | 0.730 | 0.719 | 0.741 | 0.717 | 0.729 | 0.737 | 0.729 | 0.733 | 0.738 | 0.726 | 0.732 | 0.730 | 0.734 | 0.732 | 0.723 | 0.733 | 0.728 | 0.631 | 0.716 | 0.671 | 0.737 | 0.731 | 0.734 | 0.774 | 0.768 | 0.771 |
| 200 | 69 | 0.766 | 0.741 | 0.753 | 0.770 | 0.729 | 0.749 | 0.773 | 0.723 | 0.748 | 0.773 | 0.727 | 0.749 | 0.781 | 0.747 | 0.764 | 0.775 | 0.752 | 0.764 | 0.645 | 0.774 | 0.703 | 0.726 | 0.753 | 0.739 | 0.793 | 0.804 | 0.799 |
| 300 | 127 | 0.756 | 0.790 | 0.773 | 0.756 | 0.784 | 0.769 | 0.761 | 0.781 | 0.771 | 0.762 | 0.776 | 0.769 | 0.762 | 0.798 | 0.779 | 0.766 | 0.789 | 0.777 | 0.646 | 0.824 | 0.725 | 0.750 | 0.813 | 0.781 | 0.773 | 0.832 | 0.801 |
| 500 | 219 | 0.757 | 0.812 | 0.783 | 0.757 | 0.804 | 0.780 | 0.756 | 0.806 | 0.780 | 0.757 | 0.805 | 0.780 | 0.773 | 0.814 | 0.793 | 0.770 | 0.822 | 0.795 | 0.647 | 0.860 | 0.738 | 0.728 | 0.829 | 0.775 | 0.776 | 0.837 | 0.805 |
| 700 | 303 | 0.767 | 0.816 | 0.791 | 0.767 | 0.800 | 0.783 | 0.771 | 0.801 | 0.785 | 0.773 | 0.795 | 0.784 | 0.775 | 0.816 | 0.795 | 0.772 | 0.822 | 0.796 | 0.678 | 0.857 | 0.757 | 0.740 | 0.843 | 0.788 | 0.769 | 0.849 | 0.807 |
| 1000 | 441 | 0.773 | 0.826 | 0.799 | 0.772 | 0.817 | 0.794 | 0.772 | 0.811 | 0.791 | 0.774 | 0.805 | 0.789 | 0.778 | 0.835 | 0.805 | 0.778 | 0.834 | 0.805 | 0.635 | 0.863 | 0.732 | 0.757 | 0.861 | 0.805 | 0.766 | 0.867 | 0.814 |
| 1500 | 650 | 0.769 | 0.846 | 0.806 | 0.769 | 0.828 | 0.798 | 0.766 | 0.824 | 0.794 | 0.769 | 0.818 | 0.793 | 0.779 | 0.835 | 0.806 | 0.779 | 0.838 | 0.807 | 0.676 | 0.878 | 0.764 | 0.765 | 0.860 | 0.810 | 0.769 | 0.872 | 0.817 |
| 2000 | 875 | 0.763 | 0.861 | 0.809 | 0.765 | 0.845 | 0.803 | 0.767 | 0.840 | 0.801 | 0.766 | 0.836 | 0.799 | 0.772 | 0.850 | 0.809 | 0.778 | 0.846 | 0.811 | 0.686 | 0.882 | 0.771 | 0.768 | 0.853 | 0.808 | 0.767 | 0.877 | 0.819 |
| 3000 | 1281 | 0.770 | 0.865 | 0.815 | 0.774 | 0.850 | 0.810 | 0.775 | 0.843 | 0.807 | 0.776 | 0.837 | 0.805 | 0.781 | 0.849 | 0.813 | 0.784 | 0.849 | 0.815 | 0.699 | 0.889 | 0.783 | 0.771 | 0.864 | 0.815 | 0.773 | 0.878 | 0.822 |
| 5000 | 2139 | 0.781 | 0.863 | 0.820 | 0.780 | 0.855 | 0.816 | 0.782 | 0.846 | 0.813 | 0.782 | 0.840 | 0.810 | 0.788 | 0.846 | 0.816 | 0.790 | 0.848 | 0.818 | 0.706 | 0.894 | 0.789 | 0.782 | 0.857 | 0.818 | 0.776 | 0.881 | 0.826 |
| 7000 | 2999 | 0.780 | 0.868 | 0.822 | 0.786 | 0.859 | 0.821 | 0.785 | 0.851 | 0.817 | 0.787 | 0.843 | 0.814 | 0.793 | 0.847 | 0.819 | 0.794 | 0.851 | 0.821 | 0.733 | 0.862 | 0.793 | 0.760 | 0.860 | 0.807 | 0.780 | 0.879 | 0.826 |
| 10000 | 4275 | 0.784 | 0.869 | 0.825 | 0.789 | 0.865 | 0.825 | 0.788 | 0.856 | 0.820 | 0.788 | 0.852 | 0.819 | 0.791 | 0.852 | 0.820 | 0.793 | 0.852 | 0.822 | 0.712 | 0.869 | 0.783 | 0.771 | 0.872 | 0.819 | 0.784 | 0.875 | 0.827 |
| 15000 | 6415 | 0.788 | 0.868 | 0.826 | 0.792 | 0.864 | 0.827 | 0.792 | 0.858 | 0.823 | 0.792 | 0.849 | 0.820 | 0.795 | 0.848 | 0.821 | 0.796 | 0.851 | 0.823 | 0.705 | 0.872 | 0.780 | 0.784 | 0.861 | 0.821 | 0.782 | 0.878 | 0.827 |
| 25000 | 10728 | 0.787 | 0.869 | 0.826 | 0.794 | 0.866 | 0.828 | 0.794 | 0.861 | 0.826 | 0.793 | 0.856 | 0.823 | 0.795 | 0.850 | 0.821 | 0.796 | 0.851 | 0.823 | 0.744 | 0.862 | 0.798 | 0.782 | 0.864 | 0.821 | 0.785 | 0.877 | 0.828 |
| 30000 | 12923 | 0.788 | 0.868 | 0.826 | 0.797 | 0.865 | 0.829 | 0.795 | 0.862 | 0.828 | 0.793 | 0.857 | 0.824 | 0.797 | 0.850 | 0.822 | 0.797 | 0.852 | 0.824 | 0.749 | 0.843 | 0.793 | 0.766 | 0.877 | 0.818 | 0.786 | 0.875 | 0.828 |
| 50000 | 21552 | 0.790 | 0.869 | 0.828 | 0.799 | 0.867 | 0.832 | 0.800 | 0.863 | 0.831 | 0.799 | 0.860 | 0.828 | 0.801 | 0.851 | 0.825 | 0.802 | 0.854 | 0.827 | 0.716 | 0.879 | 0.789 | 0.778 | 0.855 | 0.815 | 0.785 | 0.879 | 0.829 |
| 75000 | 32329 | 0.792 | 0.868 | 0.828 | 0.801 | 0.867 | 0.833 | 0.804 | 0.864 | 0.833 | 0.803 | 0.862 | 0.831 | 0.802 | 0.854 | 0.827 | 0.803 | 0.854 | 0.828 | 0.729 | 0.876 | 0.796 | 0.764 | 0.874 | 0.815 | 0.786 | 0.878 | 0.830 |
| 100000 | 43121 | 0.792 | 0.869 | 0.829 | 0.801 | 0.869 | 0.834 | 0.803 | 0.866 | 0.833 | 0.803 | 0.863 | 0.832 | 0.801 | 0.854 | 0.827 | 0.803 | 0.857 | 0.829 | 0.727 | 0.863 | 0.789 | 0.785 | 0.857 | 0.820 | 0.785 | 0.879 | 0.830 |
| 150000 | 64637 | 0.794 | 0.869 | 0.830 | 0.802 | 0.869 | 0.834 | 0.804 | 0.867 | 0.834 | 0.804 | 0.865 | 0.834 | 0.801 | 0.852 | 0.826 | 0.802 | 0.854 | 0.827 | 0.726 | 0.878 | 0.795 | 0.770 | 0.878 | 0.821 | 0.786 | 0.879 | 0.830 |
| 200000 | 86108 | 0.789 | 0.874 | 0.829 | 0.797 | 0.873 | 0.834 | 0.803 | 0.873 | 0.836 | 0.804 | 0.869 | 0.835 | 0.798 | 0.857 | 0.826 | 0.799 | 0.856 | 0.826 | 0.767 | 0.833 | 0.799 | 0.749 | 0.873 | 0.806 | 0.781 | 0.882 | 0.828 |

*Table 13. Soil class, Image B; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 29 | 0.626 | 0.680 | 0.651 | 0.622 | 0.681 | 0.650 | 0.618 | 0.691 | 0.652 | 0.618 | 0.690 | 0.652 | 0.645 | 0.716 | 0.679 | 0.645 | 0.704 | 0.673 | 0.557 | 0.780 | 0.650 | 0.651 | 0.719 | 0.683 | 0.689 | 0.712 | 0.700 |
| 200 | 59 | 0.693 | 0.612 | 0.650 | 0.686 | 0.621 | 0.652 | 0.686 | 0.620 | 0.652 | 0.688 | 0.622 | 0.653 | 0.686 | 0.695 | 0.691 | 0.700 | 0.660 | 0.679 | 0.568 | 0.722 | 0.636 | 0.692 | 0.704 | 0.698 | 0.719 | 0.721 | 0.720 |
| 300 | 96 | 0.676 | 0.704 | 0.690 | 0.677 | 0.703 | 0.690 | 0.679 | 0.688 | 0.683 | 0.680 | 0.687 | 0.684 | 0.692 | 0.706 | 0.699 | 0.694 | 0.725 | 0.709 | 0.607 | 0.771 | 0.679 | 0.681 | 0.734 | 0.707 | 0.718 | 0.749 | 0.733 |
| 500 | 148 | 0.700 | 0.721 | 0.710 | 0.695 | 0.725 | 0.710 | 0.687 | 0.723 | 0.704 | 0.694 | 0.717 | 0.705 | 0.702 | 0.735 | 0.718 | 0.701 | 0.732 | 0.716 | 0.601 | 0.756 | 0.669 | 0.699 | 0.743 | 0.720 | 0.740 | 0.745 | 0.742 |
| 700 | 231 | 0.692 | 0.773 | 0.730 | 0.691 | 0.754 | 0.721 | 0.691 | 0.744 | 0.716 | 0.694 | 0.739 | 0.716 | 0.699 | 0.763 | 0.730 | 0.704 | 0.773 | 0.737 | 0.610 | 0.808 | 0.695 | 0.689 | 0.785 | 0.734 | 0.720 | 0.789 | 0.753 |
| 1000 | 331 | 0.707 | 0.773 | 0.739 | 0.701 | 0.768 | 0.733 | 0.700 | 0.763 | 0.730 | 0.698 | 0.764 | 0.730 | 0.702 | 0.785 | 0.741 | 0.700 | 0.781 | 0.738 | 0.623 | 0.787 | 0.696 | 0.713 | 0.763 | 0.737 | 0.720 | 0.778 | 0.748 |
| 1500 | 496 | 0.719 | 0.766 | 0.742 | 0.707 | 0.752 | 0.729 | 0.708 | 0.745 | 0.726 | 0.708 | 0.737 | 0.723 | 0.711 | 0.759 | 0.734 | 0.713 | 0.764 | 0.738 | 0.609 | 0.821 | 0.699 | 0.707 | 0.768 | 0.736 | 0.733 | 0.782 | 0.757 |
| 2000 | 670 | 0.724 | 0.766 | 0.744 | 0.715 | 0.756 | 0.735 | 0.711 | 0.749 | 0.729 | 0.710 | 0.748 | 0.729 | 0.717 | 0.759 | 0.737 | 0.716 | 0.767 | 0.741 | 0.640 | 0.793 | 0.708 | 0.709 | 0.778 | 0.742 | 0.726 | 0.786 | 0.755 |
| 3000 | 974 | 0.737 | 0.767 | 0.752 | 0.726 | 0.759 | 0.742 | 0.723 | 0.754 | 0.739 | 0.719 | 0.753 | 0.736 | 0.728 | 0.765 | 0.746 | 0.728 | 0.765 | 0.746 | 0.629 | 0.786 | 0.699 | 0.716 | 0.764 | 0.739 | 0.734 | 0.788 | 0.760 |
| 5000 | 1643 | 0.733 | 0.787 | 0.759 | 0.733 | 0.774 | 0.753 | 0.727 | 0.763 | 0.745 | 0.725 | 0.762 | 0.743 | 0.722 | 0.773 | 0.746 | 0.727 | 0.774 | 0.750 | 0.638 | 0.796 | 0.708 | 0.680 | 0.787 | 0.729 | 0.724 | 0.794 | 0.757 |
| 7000 | 2303 | 0.732 | 0.792 | 0.761 | 0.728 | 0.782 | 0.754 | 0.729 | 0.769 | 0.748 | 0.722 | 0.768 | 0.744 | 0.726 | 0.770 | 0.748 | 0.728 | 0.774 | 0.750 | 0.650 | 0.807 | 0.720 | 0.698 | 0.788 | 0.740 | 0.730 | 0.791 | 0.760 |
| 10000 | 3310 | 0.736 | 0.792 | 0.763 | 0.737 | 0.781 | 0.759 | 0.735 | 0.773 | 0.754 | 0.730 | 0.770 | 0.750 | 0.730 | 0.777 | 0.753 | 0.733 | 0.778 | 0.755 | 0.634 | 0.775 | 0.698 | 0.694 | 0.778 | 0.733 | 0.731 | 0.793 | 0.761 |
| 15000 | 4943 | 0.735 | 0.797 | 0.765 | 0.736 | 0.794 | 0.764 | 0.732 | 0.788 | 0.759 | 0.730 | 0.782 | 0.755 | 0.730 | 0.781 | 0.755 | 0.731 | 0.783 | 0.756 | 0.648 | 0.789 | 0.712 | 0.702 | 0.796 | 0.746 | 0.739 | 0.793 | 0.765 |
| 25000 | 8253 | 0.737 | 0.802 | 0.768 | 0.738 | 0.800 | 0.768 | 0.739 | 0.792 | 0.764 | 0.737 | 0.785 | 0.760 | 0.734 | 0.779 | 0.756 | 0.736 | 0.781 | 0.757 | 0.649 | 0.815 | 0.722 | 0.707 | 0.801 | 0.751 | 0.736 | 0.804 | 0.769 |
| 30000 | 9936 | 0.739 | 0.801 | 0.769 | 0.740 | 0.800 | 0.769 | 0.739 | 0.794 | 0.765 | 0.739 | 0.787 | 0.762 | 0.735 | 0.781 | 0.757 | 0.739 | 0.781 | 0.759 | 0.645 | 0.805 | 0.716 | 0.739 | 0.751 | 0.745 | 0.738 | 0.794 | 0.765 |
| 50000 | 16562 | 0.741 | 0.801 | 0.770 | 0.745 | 0.800 | 0.772 | 0.745 | 0.798 | 0.771 | 0.743 | 0.791 | 0.766 | 0.739 | 0.780 | 0.759 | 0.741 | 0.781 | 0.760 | 0.657 | 0.794 | 0.719 | 0.696 | 0.802 | 0.745 | 0.732 | 0.802 | 0.765 |
| 75000 | 24819 | 0.740 | 0.803 | 0.770 | 0.747 | 0.801 | 0.773 | 0.747 | 0.798 | 0.771 | 0.746 | 0.794 | 0.769 | 0.741 | 0.782 | 0.761 | 0.742 | 0.784 | 0.762 | 0.644 | 0.791 | 0.710 | 0.719 | 0.785 | 0.750 | 0.741 | 0.798 | 0.768 |
| 100000 | 32999 | 0.745 | 0.800 | 0.772 | 0.750 | 0.799 | 0.774 | 0.750 | 0.798 | 0.773 | 0.750 | 0.795 | 0.772 | 0.744 | 0.779 | 0.761 | 0.745 | 0.784 | 0.764 | 0.643 | 0.798 | 0.712 | 0.724 | 0.783 | 0.752 | 0.743 | 0.794 | 0.768 |
| 150000 | 49576 | 0.747 | 0.801 | 0.773 | 0.752 | 0.802 | 0.776 | 0.752 | 0.801 | 0.776 | 0.754 | 0.799 | 0.776 | 0.745 | 0.783 | 0.764 | 0.747 | 0.785 | 0.766 | 0.665 | 0.788 | 0.721 | 0.735 | 0.764 | 0.749 | 0.742 | 0.797 | 0.769 |
| 200000 | 66286 | 0.748 | 0.800 | 0.773 | 0.753 | 0.800 | 0.776 | 0.755 | 0.799 | 0.776 | 0.754 | 0.798 | 0.775 | 0.747 | 0.784 | 0.765 | 0.749 | 0.787 | 0.768 | 0.661 | 0.796 | 0.722 | 0.719 | 0.778 | 0.747 | 0.741 | 0.798 | 0.769 |

*Table 14. Soil class, Image C; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 24 | 0.603 | 0.754 | 0.670 | 0.603 | 0.772 | 0.677 | 0.604 | 0.746 | 0.668 | 0.604 | 0.746 | 0.668 | 0.598 | 0.737 | 0.660 | 0.597 | 0.758 | 0.668 | 0.542 | 0.566 | 0.554 | 0.548 | 0.744 | 0.631 | 0.589 | 0.765 | 0.665 |
| 200 | 45 | 0.634 | 0.771 | 0.695 | 0.603 | 0.762 | 0.673 | 0.602 | 0.765 | 0.674 | 0.600 | 0.762 | 0.672 | 0.616 | 0.783 | 0.690 | 0.605 | 0.770 | 0.678 | 0.507 | 0.814 | 0.624 | 0.596 | 0.742 | 0.661 | 0.609 | 0.819 | 0.698 |
| 300 | 65 | 0.671 | 0.750 | 0.708 | 0.667 | 0.764 | 0.712 | 0.671 | 0.764 | 0.715 | 0.668 | 0.756 | 0.709 | 0.659 | 0.756 | 0.704 | 0.664 | 0.759 | 0.708 | 0.535 | 0.835 | 0.652 | 0.611 | 0.825 | 0.702 | 0.643 | 0.792 | 0.709 |
| 500 | 96 | 0.745 | 0.647 | 0.692 | 0.739 | 0.648 | 0.690 | 0.736 | 0.651 | 0.691 | 0.729 | 0.653 | 0.689 | 0.746 | 0.695 | 0.720 | 0.740 | 0.675 | 0.706 | 0.633 | 0.740 | 0.682 | 0.695 | 0.716 | 0.706 | 0.778 | 0.697 | 0.735 |
| 700 | 129 | 0.748 | 0.702 | 0.724 | 0.743 | 0.703 | 0.723 | 0.742 | 0.713 | 0.727 | 0.745 | 0.712 | 0.728 | 0.756 | 0.716 | 0.735 | 0.750 | 0.721 | 0.735 | 0.595 | 0.775 | 0.673 | 0.696 | 0.755 | 0.724 | 0.779 | 0.721 | 0.749 |
| 1000 | 194 | 0.750 | 0.719 | 0.734 | 0.747 | 0.714 | 0.730 | 0.748 | 0.720 | 0.734 | 0.749 | 0.721 | 0.735 | 0.758 | 0.728 | 0.743 | 0.764 | 0.724 | 0.744 | 0.618 | 0.758 | 0.681 | 0.707 | 0.720 | 0.713 | 0.763 | 0.720 | 0.741 |
| 1500 | 296 | 0.748 | 0.739 | 0.744 | 0.740 | 0.736 | 0.738 | 0.743 | 0.733 | 0.738 | 0.740 | 0.736 | 0.738 | 0.751 | 0.748 | 0.750 | 0.758 | 0.742 | 0.750 | 0.623 | 0.745 | 0.679 | 0.697 | 0.760 | 0.727 | 0.772 | 0.730 | 0.750 |
| 2000 | 395 | 0.744 | 0.747 | 0.745 | 0.739 | 0.739 | 0.739 | 0.746 | 0.733 | 0.739 | 0.743 | 0.739 | 0.741 | 0.751 | 0.745 | 0.748 | 0.753 | 0.744 | 0.749 | 0.610 | 0.778 | 0.684 | 0.693 | 0.725 | 0.708 | 0.752 | 0.741 | 0.747 |
| 3000 | 594 | 0.766 | 0.736 | 0.751 | 0.764 | 0.733 | 0.748 | 0.755 | 0.732 | 0.744 | 0.758 | 0.730 | 0.744 | 0.767 | 0.740 | 0.753 | 0.765 | 0.743 | 0.754 | 0.637 | 0.740 | 0.684 | 0.756 | 0.689 | 0.721 | 0.759 | 0.747 | 0.753 |
| 5000 | 972 | 0.768 | 0.750 | 0.759 | 0.765 | 0.749 | 0.757 | 0.758 | 0.744 | 0.751 | 0.755 | 0.741 | 0.748 | 0.763 | 0.747 | 0.755 | 0.765 | 0.747 | 0.756 | 0.719 | 0.653 | 0.684 | 0.751 | 0.731 | 0.741 | 0.773 | 0.756 | 0.764 |
| 7000 | 1392 | 0.762 | 0.773 | 0.767 | 0.760 | 0.769 | 0.764 | 0.753 | 0.763 | 0.758 | 0.754 | 0.751 | 0.752 | 0.756 | 0.760 | 0.758 | 0.758 | 0.760 | 0.759 | 0.624 | 0.745 | 0.679 | 0.741 | 0.739 | 0.740 | 0.753 | 0.775 | 0.764 |
| 10000 | 1982 | 0.758 | 0.783 | 0.770 | 0.758 | 0.774 | 0.766 | 0.753 | 0.770 | 0.761 | 0.752 | 0.762 | 0.757 | 0.753 | 0.763 | 0.758 | 0.759 | 0.761 | 0.760 | 0.751 | 0.624 | 0.681 | 0.736 | 0.697 | 0.716 | 0.763 | 0.777 | 0.770 |
| 15000 | 2959 | 0.769 | 0.783 | 0.776 | 0.767 | 0.778 | 0.772 | 0.764 | 0.772 | 0.768 | 0.761 | 0.764 | 0.763 | 0.763 | 0.768 | 0.765 | 0.767 | 0.767 | 0.767 | 0.619 | 0.768 | 0.686 | 0.741 | 0.746 | 0.744 | 0.770 | 0.777 | 0.774 |
| 25000 | 4947 | 0.774 | 0.786 | 0.780 | 0.773 | 0.784 | 0.779 | 0.772 | 0.776 | 0.774 | 0.771 | 0.771 | 0.771 | 0.772 | 0.768 | 0.770 | 0.774 | 0.770 | 0.772 | 0.615 | 0.788 | 0.691 | 0.756 | 0.752 | 0.754 | 0.753 | 0.779 | 0.766 |
| 30000 | 5922 | 0.779 | 0.784 | 0.782 | 0.780 | 0.784 | 0.782 | 0.776 | 0.780 | 0.778 | 0.773 | 0.776 | 0.774 | 0.774 | 0.773 | 0.773 | 0.775 | 0.772 | 0.773 | 0.665 | 0.769 | 0.714 | 0.725 | 0.763 | 0.743 | 0.764 | 0.768 | 0.766 |
| 50000 | 9922 | 0.778 | 0.786 | 0.782 | 0.779 | 0.785 | 0.782 | 0.778 | 0.783 | 0.780 | 0.777 | 0.778 | 0.778 | 0.775 | 0.770 | 0.772 | 0.776 | 0.772 | 0.774 | 0.614 | 0.791 | 0.691 | 0.761 | 0.734 | 0.747 | 0.759 | 0.782 | 0.770 |
| 75000 | 14888 | 0.779 | 0.786 | 0.782 | 0.780 | 0.787 | 0.784 | 0.779 | 0.785 | 0.782 | 0.777 | 0.784 | 0.780 | 0.774 | 0.773 | 0.773 | 0.777 | 0.776 | 0.776 | 0.638 | 0.727 | 0.679 | 0.716 | 0.771 | 0.743 | 0.775 | 0.780 | 0.777 |
| 100000 | 19850 | 0.779 | 0.788 | 0.783 | 0.781 | 0.789 | 0.785 | 0.778 | 0.792 | 0.785 | 0.779 | 0.787 | 0.783 | 0.777 | 0.776 | 0.776 | 0.777 | 0.777 | 0.777 | 0.663 | 0.771 | 0.713 | 0.732 | 0.753 | 0.742 | 0.767 | 0.785 | 0.776 |
| 150000 | 29617 | 0.779 | 0.785 | 0.782 | 0.781 | 0.788 | 0.785 | 0.781 | 0.789 | 0.785 | 0.780 | 0.789 | 0.785 | 0.777 | 0.776 | 0.777 | 0.779 | 0.777 | 0.778 | 0.730 | 0.581 | 0.647 | 0.724 | 0.762 | 0.742 | 0.760 | 0.786 | 0.772 |
| 200000 | 39520 | 0.781 | 0.785 | 0.783 | 0.783 | 0.790 | 0.786 | 0.782 | 0.793 | 0.788 | 0.782 | 0.792 | 0.787 | 0.778 | 0.777 | 0.777 | 0.779 | 0.779 | 0.779 | 0.727 | 0.680 | 0.703 | 0.765 | 0.728 | 0.746 | 0.764 | 0.777 | 0.770 |

*Table 15. Forest class, Image A; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 25 | 0.586 | 0.756 | 0.660 | 0.544 | 0.786 | 0.643 | 0.558 | 0.779 | 0.650 | 0.558 | 0.781 | 0.651 | 0.521 | 0.807 | 0.633 | 0.525 | 0.782 | 0.628 | 0.541 | 0.825 | 0.654 | 0.521 | 0.896 | 0.659 | 0.526 | 0.898 | 0.664 |
| 200 | 41 | 0.638 | 0.681 | 0.659 | 0.635 | 0.693 | 0.663 | 0.632 | 0.698 | 0.664 | 0.633 | 0.699 | 0.664 | 0.628 | 0.724 | 0.673 | 0.621 | 0.763 | 0.684 | 0.611 | 0.710 | 0.656 | 0.611 | 0.809 | 0.696 | 0.627 | 0.831 | 0.715 |
| 300 | 56 | 0.640 | 0.703 | 0.670 | 0.636 | 0.705 | 0.669 | 0.630 | 0.725 | 0.674 | 0.628 | 0.729 | 0.674 | 0.632 | 0.791 | 0.702 | 0.627 | 0.782 | 0.696 | 0.610 | 0.786 | 0.687 | 0.607 | 0.831 | 0.701 | 0.620 | 0.844 | 0.715 |
| 500 | 91 | 0.654 | 0.686 | 0.670 | 0.654 | 0.677 | 0.665 | 0.654 | 0.688 | 0.670 | 0.656 | 0.681 | 0.668 | 0.668 | 0.742 | 0.703 | 0.660 | 0.740 | 0.698 | 0.669 | 0.728 | 0.697 | 0.664 | 0.782 | 0.718 | 0.666 | 0.810 | 0.731 |
| 700 | 124 | 0.668 | 0.712 | 0.690 | 0.671 | 0.709 | 0.689 | 0.673 | 0.703 | 0.687 | 0.669 | 0.702 | 0.685 | 0.681 | 0.716 | 0.698 | 0.677 | 0.733 | 0.704 | 0.703 | 0.723 | 0.713 | 0.687 | 0.776 | 0.729 | 0.678 | 0.801 | 0.735 |
| 1000 | 171 | 0.680 | 0.737 | 0.707 | 0.676 | 0.737 | 0.705 | 0.680 | 0.713 | 0.696 | 0.681 | 0.710 | 0.695 | 0.687 | 0.735 | 0.710 | 0.690 | 0.736 | 0.713 | 0.685 | 0.747 | 0.714 | 0.679 | 0.796 | 0.733 | 0.681 | 0.798 | 0.735 |
| 1500 | 255 | 0.654 | 0.765 | 0.705 | 0.655 | 0.748 | 0.699 | 0.653 | 0.733 | 0.691 | 0.660 | 0.727 | 0.692 | 0.669 | 0.752 | 0.708 | 0.669 | 0.761 | 0.712 | 0.692 | 0.742 | 0.716 | 0.669 | 0.799 | 0.728 | 0.672 | 0.804 | 0.732 |
| 2000 | 327 | 0.688 | 0.731 | 0.709 | 0.672 | 0.716 | 0.694 | 0.671 | 0.712 | 0.691 | 0.670 | 0.697 | 0.683 | 0.690 | 0.721 | 0.705 | 0.684 | 0.730 | 0.706 | 0.716 | 0.728 | 0.722 | 0.699 | 0.772 | 0.734 | 0.694 | 0.776 | 0.733 |
| 3000 | 494 | 0.693 | 0.740 | 0.716 | 0.675 | 0.726 | 0.700 | 0.667 | 0.719 | 0.692 | 0.665 | 0.717 | 0.690 | 0.684 | 0.735 | 0.708 | 0.681 | 0.741 | 0.709 | 0.704 | 0.740 | 0.722 | 0.702 | 0.770 | 0.734 | 0.692 | 0.778 | 0.733 |
| 5000 | 793 | 0.698 | 0.758 | 0.727 | 0.692 | 0.728 | 0.709 | 0.683 | 0.719 | 0.701 | 0.681 | 0.715 | 0.697 | 0.692 | 0.728 | 0.709 | 0.695 | 0.734 | 0.714 | 0.716 | 0.729 | 0.723 | 0.707 | 0.766 | 0.736 | 0.701 | 0.770 | 0.734 |
| 7000 | 1106 | 0.702 | 0.760 | 0.730 | 0.697 | 0.742 | 0.719 | 0.691 | 0.732 | 0.711 | 0.688 | 0.720 | 0.704 | 0.692 | 0.740 | 0.715 | 0.696 | 0.741 | 0.718 | 0.698 | 0.767 | 0.731 | 0.701 | 0.772 | 0.735 | 0.698 | 0.774 | 0.734 |
| 10000 | 1585 | 0.691 | 0.773 | 0.730 | 0.693 | 0.757 | 0.724 | 0.689 | 0.743 | 0.715 | 0.686 | 0.733 | 0.708 | 0.692 | 0.745 | 0.718 | 0.691 | 0.748 | 0.718 | 0.701 | 0.751 | 0.725 | 0.700 | 0.774 | 0.735 | 0.697 | 0.777 | 0.735 |
| 15000 | 2392 | 0.693 | 0.781 | 0.735 | 0.690 | 0.778 | 0.731 | 0.692 | 0.761 | 0.725 | 0.688 | 0.751 | 0.718 | 0.692 | 0.748 | 0.719 | 0.692 | 0.750 | 0.720 | 0.682 | 0.737 | 0.709 | 0.692 | 0.784 | 0.735 | 0.695 | 0.780 | 0.735 |
| 25000 | 4006 | 0.693 | 0.778 | 0.733 | 0.693 | 0.774 | 0.732 | 0.695 | 0.764 | 0.728 | 0.694 | 0.753 | 0.722 | 0.694 | 0.743 | 0.717 | 0.695 | 0.746 | 0.719 | 0.700 | 0.762 | 0.730 | 0.694 | 0.778 | 0.734 | 0.697 | 0.776 | 0.735 |
| 30000 | 4814 | 0.691 | 0.782 | 0.734 | 0.694 | 0.776 | 0.733 | 0.694 | 0.766 | 0.728 | 0.696 | 0.755 | 0.724 | 0.693 | 0.747 | 0.719 | 0.695 | 0.746 | 0.719 | 0.690 | 0.772 | 0.729 | 0.700 | 0.773 | 0.735 | 0.698 | 0.775 | 0.734 |
| 50000 | 8026 | 0.688 | 0.785 | 0.733 | 0.691 | 0.781 | 0.733 | 0.691 | 0.776 | 0.731 | 0.693 | 0.765 | 0.727 | 0.692 | 0.744 | 0.717 | 0.693 | 0.748 | 0.720 | 0.699 | 0.747 | 0.722 | 0.690 | 0.782 | 0.733 | 0.696 | 0.776 | 0.734 |
| 75000 | 11878 | 0.691 | 0.785 | 0.735 | 0.693 | 0.781 | 0.734 | 0.695 | 0.776 | 0.733 | 0.699 | 0.768 | 0.732 | 0.696 | 0.741 | 0.718 | 0.696 | 0.742 | 0.718 | 0.682 | 0.759 | 0.719 | 0.697 | 0.772 | 0.733 | 0.698 | 0.774 | 0.734 |
| 100000 | 15909 | 0.691 | 0.782 | 0.734 | 0.696 | 0.778 | 0.734 | 0.696 | 0.773 | 0.733 | 0.698 | 0.766 | 0.730 | 0.695 | 0.738 | 0.716 | 0.695 | 0.743 | 0.718 | 0.697 | 0.759 | 0.727 | 0.695 | 0.776 | 0.733 | 0.696 | 0.776 | 0.734 |
| 150000 | 23764 | 0.686 | 0.787 | 0.733 | 0.691 | 0.783 | 0.734 | 0.697 | 0.779 | 0.736 | 0.698 | 0.771 | 0.733 | 0.696 | 0.743 | 0.719 | 0.693 | 0.745 | 0.718 | 0.698 | 0.755 | 0.725 | 0.698 | 0.774 | 0.734 | 0.698 | 0.774 | 0.734 |
| 200000 | 31641 | 0.683 | 0.777 | 0.727 | 0.693 | 0.773 | 0.731 | 0.696 | 0.772 | 0.732 | 0.696 | 0.769 | 0.730 | 0.692 | 0.737 | 0.713 | 0.691 | 0.738 | 0.714 | 0.692 | 0.754 | 0.722 | 0.689 | 0.769 | 0.726 | 0.699 | 0.768 | 0.731 |

*Table 16. Forest class, Image B; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 21 | 0.666 | 0.637 | 0.651 | 0.681 | 0.627 | 0.653 | 0.693 | 0.611 | 0.649 | 0.697 | 0.621 | 0.657 | 0.678 | 0.637 | 0.657 | 0.670 | 0.644 | 0.656 | 0.727 | 0.552 | 0.627 | 0.718 | 0.708 | 0.713 | 0.701 | 0.716 | 0.708 |
| 200 | 44 | 0.688 | 0.613 | 0.648 | 0.686 | 0.620 | 0.651 | 0.688 | 0.623 | 0.654 | 0.680 | 0.623 | 0.650 | 0.718 | 0.617 | 0.663 | 0.703 | 0.642 | 0.671 | 0.719 | 0.655 | 0.686 | 0.737 | 0.685 | 0.710 | 0.704 | 0.724 | 0.714 |
| 300 | 66 | 0.691 | 0.666 | 0.678 | 0.691 | 0.659 | 0.675 | 0.696 | 0.654 | 0.674 | 0.697 | 0.656 | 0.676 | 0.677 | 0.668 | 0.672 | 0.679 | 0.698 | 0.688 | 0.720 | 0.701 | 0.710 | 0.705 | 0.726 | 0.715 | 0.708 | 0.733 | 0.720 |
| 500 | 114 | 0.680 | 0.721 | 0.700 | 0.689 | 0.708 | 0.698 | 0.680 | 0.702 | 0.691 | 0.684 | 0.697 | 0.691 | 0.673 | 0.734 | 0.702 | 0.692 | 0.719 | 0.706 | 0.711 | 0.729 | 0.720 | 0.713 | 0.749 | 0.730 | 0.716 | 0.755 | 0.735 |
| 700 | 151 | 0.690 | 0.733 | 0.711 | 0.688 | 0.719 | 0.703 | 0.689 | 0.717 | 0.703 | 0.690 | 0.722 | 0.706 | 0.702 | 0.740 | 0.720 | 0.708 | 0.733 | 0.720 | 0.734 | 0.715 | 0.724 | 0.730 | 0.752 | 0.741 | 0.726 | 0.769 | 0.747 |
| 1000 | 213 | 0.717 | 0.734 | 0.725 | 0.711 | 0.722 | 0.716 | 0.711 | 0.723 | 0.717 | 0.713 | 0.726 | 0.719 | 0.713 | 0.765 | 0.738 | 0.715 | 0.758 | 0.736 | 0.728 | 0.737 | 0.732 | 0.734 | 0.784 | 0.758 | 0.731 | 0.787 | 0.758 |
| 1500 | 308 | 0.731 | 0.734 | 0.733 | 0.722 | 0.725 | 0.724 | 0.715 | 0.720 | 0.718 | 0.710 | 0.724 | 0.717 | 0.716 | 0.757 | 0.736 | 0.720 | 0.756 | 0.738 | 0.761 | 0.752 | 0.756 | 0.744 | 0.776 | 0.760 | 0.741 | 0.783 | 0.761 |
| 2000 | 407 | 0.726 | 0.764 | 0.745 | 0.715 | 0.749 | 0.732 | 0.710 | 0.748 | 0.729 | 0.704 | 0.743 | 0.723 | 0.716 | 0.767 | 0.741 | 0.717 | 0.767 | 0.741 | 0.752 | 0.746 | 0.749 | 0.747 | 0.771 | 0.758 | 0.735 | 0.791 | 0.762 |
| 3000 | 600 | 0.741 | 0.763 | 0.752 | 0.729 | 0.747 | 0.738 | 0.719 | 0.749 | 0.734 | 0.720 | 0.743 | 0.731 | 0.725 | 0.765 | 0.745 | 0.723 | 0.769 | 0.745 | 0.742 | 0.767 | 0.754 | 0.748 | 0.778 | 0.763 | 0.742 | 0.784 | 0.762 |
| 5000 | 963 | 0.763 | 0.747 | 0.755 | 0.748 | 0.742 | 0.745 | 0.736 | 0.735 | 0.735 | 0.736 | 0.730 | 0.733 | 0.742 | 0.741 | 0.742 | 0.741 | 0.744 | 0.743 | 0.754 | 0.724 | 0.739 | 0.768 | 0.761 | 0.764 | 0.753 | 0.773 | 0.763 |
| 7000 | 1347 | 0.763 | 0.752 | 0.758 | 0.751 | 0.750 | 0.750 | 0.741 | 0.745 | 0.743 | 0.737 | 0.740 | 0.738 | 0.741 | 0.750 | 0.746 | 0.745 | 0.753 | 0.749 | 0.759 | 0.754 | 0.757 | 0.764 | 0.763 | 0.763 | 0.756 | 0.771 | 0.763 |
| 10000 | 1919 | 0.760 | 0.756 | 0.758 | 0.757 | 0.752 | 0.754 | 0.747 | 0.747 | 0.747 | 0.743 | 0.740 | 0.741 | 0.741 | 0.753 | 0.747 | 0.745 | 0.748 | 0.746 | 0.759 | 0.730 | 0.744 | 0.762 | 0.764 | 0.763 | 0.755 | 0.772 | 0.763 |
| 15000 | 2852 | 0.759 | 0.763 | 0.761 | 0.751 | 0.765 | 0.758 | 0.748 | 0.755 | 0.751 | 0.740 | 0.749 | 0.745 | 0.741 | 0.755 | 0.748 | 0.744 | 0.756 | 0.750 | 0.752 | 0.735 | 0.744 | 0.759 | 0.771 | 0.765 | 0.753 | 0.775 | 0.764 |
| 25000 | 4753 | 0.762 | 0.767 | 0.764 | 0.761 | 0.765 | 0.763 | 0.756 | 0.761 | 0.759 | 0.753 | 0.752 | 0.753 | 0.746 | 0.757 | 0.752 | 0.749 | 0.758 | 0.754 | 0.760 | 0.718 | 0.738 | 0.755 | 0.772 | 0.763 | 0.754 | 0.777 | 0.765 |
| 30000 | 5685 | 0.764 | 0.766 | 0.765 | 0.764 | 0.764 | 0.764 | 0.760 | 0.761 | 0.761 | 0.757 | 0.757 | 0.757 | 0.748 | 0.758 | 0.753 | 0.750 | 0.758 | 0.754 | 0.758 | 0.710 | 0.733 | 0.760 | 0.766 | 0.763 | 0.756 | 0.777 | 0.766 |
| 50000 | 9435 | 0.762 | 0.768 | 0.765 | 0.764 | 0.767 | 0.765 | 0.761 | 0.767 | 0.764 | 0.758 | 0.762 | 0.760 | 0.749 | 0.760 | 0.754 | 0.751 | 0.760 | 0.755 | 0.766 | 0.740 | 0.753 | 0.755 | 0.765 | 0.760 | 0.756 | 0.777 | 0.766 |
| 75000 | 14230 | 0.759 | 0.770 | 0.765 | 0.760 | 0.771 | 0.765 | 0.759 | 0.772 | 0.765 | 0.758 | 0.766 | 0.762 | 0.748 | 0.764 | 0.756 | 0.750 | 0.762 | 0.756 | 0.754 | 0.753 | 0.754 | 0.752 | 0.779 | 0.765 | 0.756 | 0.776 | 0.766 |
| 100000 | 18919 | 0.759 | 0.775 | 0.767 | 0.763 | 0.771 | 0.767 | 0.759 | 0.773 | 0.766 | 0.758 | 0.768 | 0.763 | 0.748 | 0.765 | 0.756 | 0.749 | 0.762 | 0.755 | 0.747 | 0.745 | 0.746 | 0.748 | 0.784 | 0.765 | 0.757 | 0.778 | 0.767 |
| 150000 | 28435 | 0.761 | 0.776 | 0.769 | 0.762 | 0.779 | 0.770 | 0.763 | 0.780 | 0.771 | 0.762 | 0.779 | 0.770 | 0.750 | 0.766 | 0.758 | 0.751 | 0.769 | 0.760 | 0.751 | 0.750 | 0.751 | 0.759 | 0.756 | 0.757 | 0.755 | 0.781 | 0.768 |
| 200000 | 37836 | 0.760 | 0.774 | 0.767 | 0.764 | 0.778 | 0.771 | 0.764 | 0.781 | 0.772 | 0.762 | 0.776 | 0.769 | 0.749 | 0.763 | 0.756 | 0.749 | 0.766 | 0.757 | 0.747 | 0.754 | 0.751 | 0.754 | 0.780 | 0.767 | 0.756 | 0.780 | 0.768 |

*Table 17. Forest class, Image C; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 33 | 0.871 | 0.827 | 0.849 | 0.853 | 0.822 | 0.837 | 0.844 | 0.824 | 0.834 | 0.844 | 0.824 | 0.834 | 0.886 | 0.846 | 0.865 | 0.884 | 0.846 | 0.865 | 0.842 | 0.844 | 0.843 | 0.838 | 0.876 | 0.857 | 0.833 | 0.891 | 0.861 |
| 200 | 70 | 0.854 | 0.859 | 0.856 | 0.852 | 0.854 | 0.853 | 0.849 | 0.859 | 0.854 | 0.852 | 0.861 | 0.856 | 0.871 | 0.861 | 0.866 | 0.876 | 0.863 | 0.870 | 0.833 | 0.851 | 0.842 | 0.846 | 0.868 | 0.857 | 0.843 | 0.902 | 0.871 |
| 300 | 102 | 0.843 | 0.868 | 0.855 | 0.847 | 0.865 | 0.856 | 0.847 | 0.868 | 0.857 | 0.849 | 0.867 | 0.858 | 0.859 | 0.868 | 0.864 | 0.866 | 0.869 | 0.867 | 0.845 | 0.848 | 0.847 | 0.853 | 0.878 | 0.865 | 0.847 | 0.896 | 0.871 |
| 500 | 157 | 0.856 | 0.878 | 0.867 | 0.856 | 0.871 | 0.863 | 0.851 | 0.877 | 0.864 | 0.850 | 0.879 | 0.864 | 0.860 | 0.881 | 0.871 | 0.861 | 0.883 | 0.872 | 0.847 | 0.884 | 0.865 | 0.852 | 0.895 | 0.873 | 0.848 | 0.902 | 0.875 |
| 700 | 222 | 0.854 | 0.879 | 0.866 | 0.851 | 0.876 | 0.864 | 0.855 | 0.874 | 0.865 | 0.856 | 0.874 | 0.865 | 0.861 | 0.885 | 0.873 | 0.864 | 0.882 | 0.873 | 0.858 | 0.877 | 0.867 | 0.855 | 0.890 | 0.872 | 0.847 | 0.902 | 0.874 |
| 1000 | 309 | 0.868 | 0.873 | 0.871 | 0.862 | 0.875 | 0.869 | 0.864 | 0.875 | 0.869 | 0.864 | 0.873 | 0.868 | 0.866 | 0.883 | 0.875 | 0.870 | 0.881 | 0.875 | 0.865 | 0.874 | 0.870 | 0.861 | 0.895 | 0.878 | 0.852 | 0.901 | 0.876 |
| 1500 | 475 | 0.867 | 0.879 | 0.873 | 0.857 | 0.880 | 0.868 | 0.856 | 0.877 | 0.867 | 0.857 | 0.877 | 0.867 | 0.867 | 0.882 | 0.874 | 0.864 | 0.886 | 0.875 | 0.864 | 0.883 | 0.873 | 0.858 | 0.898 | 0.878 | 0.853 | 0.902 | 0.877 |
| 2000 | 630 | 0.861 | 0.883 | 0.872 | 0.854 | 0.881 | 0.867 | 0.855 | 0.878 | 0.866 | 0.852 | 0.879 | 0.866 | 0.859 | 0.885 | 0.872 | 0.858 | 0.887 | 0.872 | 0.850 | 0.892 | 0.870 | 0.858 | 0.898 | 0.878 | 0.854 | 0.903 | 0.877 |
| 3000 | 930 | 0.878 | 0.877 | 0.878 | 0.869 | 0.875 | 0.872 | 0.865 | 0.871 | 0.868 | 0.862 | 0.871 | 0.866 | 0.869 | 0.880 | 0.875 | 0.873 | 0.878 | 0.876 | 0.868 | 0.881 | 0.874 | 0.871 | 0.889 | 0.880 | 0.864 | 0.895 | 0.879 |
| 5000 | 1561 | 0.881 | 0.876 | 0.878 | 0.876 | 0.872 | 0.874 | 0.872 | 0.869 | 0.871 | 0.871 | 0.865 | 0.868 | 0.872 | 0.873 | 0.873 | 0.875 | 0.873 | 0.874 | 0.884 | 0.865 | 0.875 | 0.874 | 0.885 | 0.879 | 0.870 | 0.891 | 0.880 |
| 7000 | 2212 | 0.871 | 0.883 | 0.877 | 0.868 | 0.880 | 0.874 | 0.865 | 0.877 | 0.871 | 0.862 | 0.876 | 0.869 | 0.863 | 0.881 | 0.872 | 0.862 | 0.883 | 0.872 | 0.866 | 0.885 | 0.875 | 0.868 | 0.889 | 0.878 | 0.860 | 0.898 | 0.878 |
| 10000 | 3139 | 0.874 | 0.883 | 0.879 | 0.871 | 0.882 | 0.876 | 0.866 | 0.881 | 0.874 | 0.866 | 0.877 | 0.871 | 0.865 | 0.880 | 0.872 | 0.868 | 0.880 | 0.874 | 0.875 | 0.879 | 0.877 | 0.869 | 0.891 | 0.880 | 0.863 | 0.897 | 0.879 |
| 15000 | 4744 | 0.873 | 0.886 | 0.879 | 0.873 | 0.883 | 0.878 | 0.867 | 0.883 | 0.875 | 0.865 | 0.880 | 0.872 | 0.864 | 0.883 | 0.873 | 0.866 | 0.883 | 0.874 | 0.873 | 0.885 | 0.879 | 0.871 | 0.891 | 0.880 | 0.863 | 0.895 | 0.879 |
| 25000 | 7912 | 0.874 | 0.889 | 0.882 | 0.874 | 0.886 | 0.880 | 0.872 | 0.885 | 0.878 | 0.866 | 0.883 | 0.875 | 0.865 | 0.884 | 0.874 | 0.865 | 0.886 | 0.875 | 0.867 | 0.889 | 0.877 | 0.870 | 0.887 | 0.879 | 0.863 | 0.897 | 0.880 |
| 30000 | 9412 | 0.878 | 0.884 | 0.881 | 0.878 | 0.883 | 0.881 | 0.873 | 0.884 | 0.878 | 0.870 | 0.881 | 0.875 | 0.865 | 0.885 | 0.875 | 0.867 | 0.884 | 0.876 | 0.876 | 0.868 | 0.872 | 0.873 | 0.889 | 0.881 | 0.865 | 0.895 | 0.880 |
| 50000 | 15623 | 0.875 | 0.888 | 0.881 | 0.878 | 0.886 | 0.882 | 0.875 | 0.885 | 0.880 | 0.872 | 0.883 | 0.878 | 0.868 | 0.883 | 0.876 | 0.869 | 0.884 | 0.876 | 0.876 | 0.870 | 0.873 | 0.874 | 0.888 | 0.881 | 0.866 | 0.894 | 0.880 |
| 75000 | 23512 | 0.875 | 0.887 | 0.881 | 0.879 | 0.886 | 0.882 | 0.876 | 0.885 | 0.881 | 0.873 | 0.884 | 0.879 | 0.868 | 0.884 | 0.876 | 0.869 | 0.883 | 0.876 | 0.875 | 0.875 | 0.875 | 0.868 | 0.892 | 0.880 | 0.866 | 0.894 | 0.880 |
| 100000 | 31367 | 0.876 | 0.887 | 0.881 | 0.879 | 0.885 | 0.882 | 0.878 | 0.885 | 0.881 | 0.877 | 0.883 | 0.880 | 0.868 | 0.882 | 0.875 | 0.870 | 0.882 | 0.876 | 0.868 | 0.887 | 0.877 | 0.870 | 0.891 | 0.881 | 0.867 | 0.894 | 0.880 |
| 150000 | 47031 | 0.876 | 0.887 | 0.881 | 0.879 | 0.886 | 0.882 | 0.878 | 0.885 | 0.882 | 0.877 | 0.885 | 0.881 | 0.868 | 0.882 | 0.875 | 0.869 | 0.882 | 0.876 | 0.873 | 0.881 | 0.877 | 0.870 | 0.892 | 0.881 | 0.867 | 0.894 | 0.880 |
| 200000 | 62674 | 0.876 | 0.888 | 0.882 | 0.880 | 0.886 | 0.883 | 0.878 | 0.887 | 0.882 | 0.877 | 0.886 | 0.882 | 0.868 | 0.882 | 0.875 | 0.871 | 0.882 | 0.876 | 0.876 | 0.866 | 0.871 | 0.869 | 0.893 | 0.881 | 0.867 | 0.895 | 0.881 |

*Table 18. Water class, Image A; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 5 | 0.925 | 0.746 | 0.826 | 0.843 | 0.775 | 0.808 | 0.863 | 0.775 | 0.817 | 0.868 | 0.780 | 0.822 | 0.903 | 0.762 | 0.827 | 0.919 | 0.765 | 0.835 | 0.739 | 0.617 | 0.672 | 0.619 | 0.718 | 0.665 | 0.909 | 0.781 | 0.840 |
| 200 | 9 | 0.776 | 0.838 | 0.806 | 0.766 | 0.831 | 0.797 | 0.756 | 0.816 | 0.785 | 0.765 | 0.828 | 0.795 | 0.817 | 0.840 | 0.828 | 0.862 | 0.838 | 0.850 | 0.941 | 0.614 | 0.743 | 0.666 | 0.296 | 0.409 | 0.899 | 0.831 | 0.864 |
| 300 | 17 | 0.832 | 0.843 | 0.838 | 0.837 | 0.835 | 0.836 | 0.818 | 0.846 | 0.832 | 0.827 | 0.834 | 0.831 | 0.794 | 0.866 | 0.829 | 0.850 | 0.851 | 0.850 | 0.915 | 0.607 | 0.730 | 0.839 | 0.843 | 0.841 | 0.865 | 0.851 | 0.858 |
| 500 | 26 | 0.795 | 0.843 | 0.818 | 0.785 | 0.843 | 0.813 | 0.790 | 0.844 | 0.816 | 0.797 | 0.843 | 0.819 | 0.812 | 0.866 | 0.838 | 0.794 | 0.868 | 0.829 | 0.984 | 0.461 | 0.628 | 0.954 | 0.714 | 0.817 | 0.863 | 0.857 | 0.860 |
| 700 | 32 | 0.778 | 0.861 | 0.818 | 0.762 | 0.865 | 0.810 | 0.766 | 0.865 | 0.812 | 0.782 | 0.869 | 0.823 | 0.773 | 0.871 | 0.819 | 0.765 | 0.872 | 0.815 | 0.832 | 0.605 | 0.700 | 0.822 | 0.851 | 0.836 | 0.827 | 0.870 | 0.848 |
| 1000 | 46 | 0.784 | 0.865 | 0.823 | 0.790 | 0.865 | 0.826 | 0.804 | 0.861 | 0.832 | 0.788 | 0.868 | 0.826 | 0.817 | 0.869 | 0.842 | 0.805 | 0.873 | 0.837 | 0.229 | 0.031 | 0.054 | 0.875 | 0.854 | 0.865 | 0.841 | 0.867 | 0.854 |
| 1500 | 70 | 0.846 | 0.862 | 0.854 | 0.834 | 0.858 | 0.846 | 0.832 | 0.861 | 0.846 | 0.837 | 0.865 | 0.851 | 0.877 | 0.857 | 0.867 | 0.886 | 0.853 | 0.869 | 0.976 | 0.482 | 0.645 | 0.887 | 0.852 | 0.869 | 0.894 | 0.853 | 0.873 |
| 2000 | 94 | 0.853 | 0.849 | 0.851 | 0.862 | 0.845 | 0.853 | 0.860 | 0.852 | 0.856 | 0.852 | 0.857 | 0.855 | 0.875 | 0.856 | 0.865 | 0.886 | 0.852 | 0.869 | 0.958 | 0.775 | 0.857 | 0.631 | 0.854 | 0.726 | 0.897 | 0.851 | 0.873 |
| 3000 | 141 | 0.865 | 0.864 | 0.864 | 0.860 | 0.866 | 0.863 | 0.863 | 0.865 | 0.864 | 0.856 | 0.870 | 0.863 | 0.875 | 0.864 | 0.870 | 0.884 | 0.859 | 0.871 | 0.901 | 0.832 | 0.865 | 0.897 | 0.783 | 0.836 | 0.889 | 0.862 | 0.876 |
| 5000 | 241 | 0.893 | 0.853 | 0.872 | 0.891 | 0.849 | 0.870 | 0.885 | 0.851 | 0.868 | 0.888 | 0.852 | 0.870 | 0.901 | 0.852 | 0.876 | 0.902 | 0.855 | 0.878 | 0.947 | 0.779 | 0.855 | 0.886 | 0.847 | 0.866 | 0.899 | 0.856 | 0.877 |
| 7000 | 348 | 0.895 | 0.853 | 0.874 | 0.891 | 0.859 | 0.875 | 0.896 | 0.857 | 0.876 | 0.894 | 0.855 | 0.874 | 0.911 | 0.853 | 0.881 | 0.905 | 0.856 | 0.880 | 0.902 | 0.830 | 0.864 | 0.903 | 0.847 | 0.874 | 0.897 | 0.855 | 0.875 |
| 10000 | 490 | 0.904 | 0.847 | 0.875 | 0.910 | 0.851 | 0.880 | 0.906 | 0.847 | 0.875 | 0.905 | 0.848 | 0.876 | 0.918 | 0.848 | 0.881 | 0.913 | 0.850 | 0.880 | 0.908 | 0.831 | 0.868 | 0.894 | 0.846 | 0.869 | 0.903 | 0.855 | 0.878 |
| 15000 | 730 | 0.902 | 0.856 | 0.878 | 0.902 | 0.857 | 0.878 | 0.900 | 0.856 | 0.877 | 0.903 | 0.855 | 0.878 | 0.919 | 0.851 | 0.883 | 0.917 | 0.852 | 0.884 | 0.870 | 0.507 | 0.641 | 0.878 | 0.848 | 0.863 | 0.899 | 0.858 | 0.878 |
| 25000 | 1204 | 0.908 | 0.854 | 0.880 | 0.904 | 0.855 | 0.879 | 0.904 | 0.856 | 0.879 | 0.904 | 0.856 | 0.879 | 0.905 | 0.858 | 0.881 | 0.907 | 0.858 | 0.882 | 0.893 | 0.708 | 0.790 | 0.905 | 0.844 | 0.873 | 0.900 | 0.855 | 0.877 |
| 30000 | 1414 | 0.911 | 0.853 | 0.881 | 0.902 | 0.855 | 0.878 | 0.909 | 0.855 | 0.881 | 0.907 | 0.850 | 0.877 | 0.911 | 0.855 | 0.882 | 0.914 | 0.855 | 0.884 | 0.930 | 0.724 | 0.814 | 0.901 | 0.842 | 0.871 | 0.901 | 0.853 | 0.876 |
| 50000 | 2336 | 0.908 | 0.856 | 0.881 | 0.910 | 0.857 | 0.883 | 0.909 | 0.855 | 0.881 | 0.907 | 0.851 | 0.878 | 0.911 | 0.856 | 0.883 | 0.911 | 0.855 | 0.882 | 0.904 | 0.764 | 0.828 | 0.884 | 0.846 | 0.865 | 0.901 | 0.857 | 0.879 |
| 75000 | 3465 | 0.912 | 0.855 | 0.882 | 0.920 | 0.854 | 0.885 | 0.918 | 0.855 | 0.885 | 0.914 | 0.856 | 0.884 | 0.914 | 0.854 | 0.883 | 0.915 | 0.854 | 0.883 | 0.919 | 0.784 | 0.846 | 0.945 | 0.727 | 0.822 | 0.900 | 0.857 | 0.878 |
| 100000 | 4604 | 0.917 | 0.857 | 0.886 | 0.917 | 0.861 | 0.888 | 0.916 | 0.861 | 0.887 | 0.915 | 0.857 | 0.885 | 0.915 | 0.859 | 0.886 | 0.915 | 0.859 | 0.886 | 0.964 | 0.576 | 0.721 | 0.896 | 0.837 | 0.866 | 0.908 | 0.857 | 0.882 |
| 150000 | 6778 | 0.928 | 0.852 | 0.888 | 0.928 | 0.857 | 0.891 | 0.925 | 0.859 | 0.891 | 0.918 | 0.858 | 0.887 | 0.920 | 0.857 | 0.887 | 0.917 | 0.861 | 0.888 | 0.959 | 0.786 | 0.864 | 0.932 | 0.794 | 0.858 | 0.909 | 0.857 | 0.882 |
| 200000 | 9020 | 0.930 | 0.867 | 0.897 | 0.926 | 0.888 | 0.907 | 0.923 | 0.881 | 0.901 | 0.915 | 0.874 | 0.894 | 0.914 | 0.871 | 0.892 | 0.916 | 0.880 | 0.898 | 0.545 | 0.886 | 0.675 | 0.897 | 0.875 | 0.886 | 0.915 | 0.872 | 0.893 |

*Table 19. Water class, Image B; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 4 | 0.975 | 0.743 | 0.844 | 0.976 | 0.743 | 0.844 | 0.976 | 0.743 | 0.844 | 0.976 | 0.743 | 0.844 | 0.941 | 0.789 | 0.858 | 0.952 | 0.738 | 0.831 | 0.986 | 0.702 | 0.820 | 0.976 | 0.752 | 0.849 | 0.967 | 0.777 | 0.862 |
| 200 | 9 | 0.741 | 0.867 | 0.799 | 0.713 | 0.913 | 0.801 | 0.713 | 0.911 | 0.800 | 0.721 | 0.907 | 0.804 | 0.770 | 0.840 | 0.804 | 0.764 | 0.873 | 0.815 | 0.932 | 0.522 | 0.669 | 0.841 | 0.805 | 0.823 | 0.957 | 0.803 | 0.873 |
| 300 | 15 | 0.842 | 0.815 | 0.828 | 0.805 | 0.869 | 0.836 | 0.800 | 0.877 | 0.836 | 0.798 | 0.880 | 0.837 | 0.805 | 0.811 | 0.808 | 0.852 | 0.823 | 0.838 | 0.990 | 0.669 | 0.798 | 0.943 | 0.833 | 0.884 | 0.925 | 0.857 | 0.890 |
| 500 | 24 | 0.876 | 0.848 | 0.862 | 0.867 | 0.847 | 0.857 | 0.857 | 0.853 | 0.855 | 0.866 | 0.848 | 0.857 | 0.888 | 0.861 | 0.874 | 0.873 | 0.875 | 0.874 | 0.000 | 0.000 | 0.000 | 0.974 | 0.755 | 0.850 | 0.901 | 0.890 | 0.895 |
| 700 | 30 | 0.907 | 0.841 | 0.873 | 0.873 | 0.853 | 0.863 | 0.868 | 0.860 | 0.864 | 0.861 | 0.865 | 0.863 | 0.911 | 0.843 | 0.876 | 0.884 | 0.867 | 0.876 | 0.985 | 0.709 | 0.824 | 0.962 | 0.779 | 0.861 | 0.928 | 0.856 | 0.891 |
| 1000 | 34 | 0.920 | 0.840 | 0.878 | 0.897 | 0.852 | 0.874 | 0.893 | 0.858 | 0.875 | 0.898 | 0.858 | 0.878 | 0.919 | 0.826 | 0.870 | 0.909 | 0.825 | 0.865 | 0.976 | 0.755 | 0.851 | 0.976 | 0.726 | 0.833 | 0.938 | 0.846 | 0.890 |
| 1500 | 46 | 0.933 | 0.846 | 0.887 | 0.930 | 0.848 | 0.887 | 0.931 | 0.846 | 0.886 | 0.933 | 0.843 | 0.886 | 0.934 | 0.849 | 0.890 | 0.936 | 0.841 | 0.886 | 0.953 | 0.642 | 0.767 | 0.974 | 0.737 | 0.839 | 0.936 | 0.850 | 0.891 |
| 2000 | 65 | 0.937 | 0.836 | 0.884 | 0.935 | 0.836 | 0.883 | 0.941 | 0.828 | 0.881 | 0.935 | 0.832 | 0.881 | 0.934 | 0.841 | 0.885 | 0.934 | 0.847 | 0.889 | 0.964 | 0.783 | 0.864 | 0.929 | 0.738 | 0.823 | 0.933 | 0.855 | 0.892 |
| 3000 | 99 | 0.927 | 0.845 | 0.884 | 0.916 | 0.856 | 0.885 | 0.914 | 0.859 | 0.886 | 0.914 | 0.866 | 0.889 | 0.927 | 0.874 | 0.899 | 0.920 | 0.875 | 0.897 | 0.987 | 0.503 | 0.667 | 0.921 | 0.776 | 0.842 | 0.921 | 0.876 | 0.898 |
| 5000 | 164 | 0.919 | 0.884 | 0.901 | 0.919 | 0.878 | 0.898 | 0.919 | 0.873 | 0.895 | 0.918 | 0.872 | 0.894 | 0.915 | 0.880 | 0.897 | 0.915 | 0.880 | 0.897 | 0.941 | 0.557 | 0.700 | 0.903 | 0.816 | 0.857 | 0.909 | 0.890 | 0.899 |
| 7000 | 245 | 0.918 | 0.874 | 0.895 | 0.915 | 0.874 | 0.894 | 0.912 | 0.875 | 0.893 | 0.914 | 0.873 | 0.893 | 0.913 | 0.874 | 0.893 | 0.912 | 0.879 | 0.895 | 0.903 | 0.626 | 0.739 | 0.980 | 0.686 | 0.807 | 0.894 | 0.897 | 0.896 |
| 10000 | 313 | 0.914 | 0.881 | 0.897 | 0.916 | 0.872 | 0.894 | 0.919 | 0.871 | 0.895 | 0.917 | 0.871 | 0.894 | 0.917 | 0.877 | 0.897 | 0.913 | 0.880 | 0.896 | 0.997 | 0.166 | 0.284 | 0.957 | 0.805 | 0.874 | 0.899 | 0.894 | 0.896 |
| 15000 | 473 | 0.915 | 0.882 | 0.898 | 0.915 | 0.878 | 0.896 | 0.912 | 0.879 | 0.895 | 0.909 | 0.879 | 0.894 | 0.916 | 0.878 | 0.897 | 0.913 | 0.880 | 0.896 | 0.953 | 0.564 | 0.709 | 0.919 | 0.877 | 0.897 | 0.906 | 0.892 | 0.899 |
| 25000 | 810 | 0.912 | 0.887 | 0.899 | 0.911 | 0.888 | 0.899 | 0.908 | 0.886 | 0.897 | 0.910 | 0.881 | 0.896 | 0.911 | 0.885 | 0.898 | 0.913 | 0.886 | 0.899 | 0.935 | 0.847 | 0.889 | 0.921 | 0.820 | 0.867 | 0.900 | 0.896 | 0.898 |
| 30000 | 982 | 0.910 | 0.892 | 0.901 | 0.908 | 0.888 | 0.898 | 0.909 | 0.885 | 0.897 | 0.906 | 0.885 | 0.895 | 0.914 | 0.886 | 0.900 | 0.912 | 0.889 | 0.900 | 0.930 | 0.771 | 0.843 | 0.943 | 0.837 | 0.887 | 0.906 | 0.897 | 0.902 |
| 50000 | 1615 | 0.914 | 0.894 | 0.904 | 0.920 | 0.889 | 0.904 | 0.916 | 0.889 | 0.903 | 0.915 | 0.887 | 0.901 | 0.919 | 0.888 | 0.903 | 0.916 | 0.889 | 0.902 | 0.901 | 0.759 | 0.824 | 0.899 | 0.837 | 0.867 | 0.907 | 0.896 | 0.901 |
| 75000 | 2510 | 0.914 | 0.895 | 0.904 | 0.914 | 0.895 | 0.905 | 0.911 | 0.894 | 0.903 | 0.911 | 0.895 | 0.903 | 0.917 | 0.895 | 0.906 | 0.918 | 0.891 | 0.904 | 0.942 | 0.614 | 0.743 | 0.890 | 0.892 | 0.891 | 0.903 | 0.899 | 0.901 |
| 100000 | 3441 | 0.912 | 0.898 | 0.905 | 0.915 | 0.899 | 0.907 | 0.914 | 0.898 | 0.906 | 0.913 | 0.893 | 0.903 | 0.915 | 0.896 | 0.905 | 0.916 | 0.898 | 0.907 | 0.961 | 0.625 | 0.757 | 0.893 | 0.893 | 0.893 | 0.749 | 0.904 | 0.819 |
| 150000 | 5048 | 0.912 | 0.901 | 0.906 | 0.917 | 0.903 | 0.910 | 0.919 | 0.898 | 0.908 | 0.914 | 0.900 | 0.907 | 0.916 | 0.900 | 0.908 | 0.916 | 0.897 | 0.906 | 0.981 | 0.726 | 0.834 | 0.906 | 0.843 | 0.873 | 0.898 | 0.904 | 0.901 |
| 200000 | 6670 | 0.915 | 0.900 | 0.907 | 0.919 | 0.903 | 0.911 | 0.920 | 0.902 | 0.911 | 0.920 | 0.900 | 0.910 | 0.915 | 0.902 | 0.909 | 0.917 | 0.899 | 0.908 | 0.979 | 0.730 | 0.837 | 0.933 | 0.850 | 0.890 | 0.894 | 0.901 | 0.898 |

*Table 20. Water class, Image C; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 2 | 0.918 | 0.561 | 0.696 | 0.938 | 0.563 | 0.704 | 0.933 | 0.551 | 0.693 | 0.933 | 0.551 | 0.693 | 0.971 | 0.551 | 0.703 | 0.970 | 0.518 | 0.675 | 0.994 | 0.605 | 0.752 | 0.993 | 0.842 | 0.911 | 0.989 | 0.873 | 0.927 |
| 200 | 5 | 0.990 | 0.828 | 0.902 | 0.990 | 0.827 | 0.901 | 0.990 | 0.809 | 0.891 | 0.990 | 0.801 | 0.886 | 0.981 | 0.830 | 0.900 | 0.983 | 0.831 | 0.901 | 0.996 | 0.769 | 0.868 | 0.990 | 0.867 | 0.924 | 0.974 | 0.906 | 0.939 |
| 300 | 12 | 0.963 | 0.856 | 0.906 | 0.959 | 0.865 | 0.909 | 0.960 | 0.864 | 0.910 | 0.958 | 0.859 | 0.906 | 0.942 | 0.797 | 0.863 | 0.963 | 0.783 | 0.864 | 0.997 | 0.781 | 0.876 | 0.982 | 0.852 | 0.913 | 0.973 | 0.907 | 0.939 |
| 500 | 28 | 0.952 | 0.919 | 0.935 | 0.946 | 0.919 | 0.932 | 0.949 | 0.918 | 0.933 | 0.947 | 0.918 | 0.933 | 0.936 | 0.925 | 0.931 | 0.935 | 0.930 | 0.933 | 0.995 | 0.820 | 0.899 | 0.978 | 0.900 | 0.937 | 0.947 | 0.928 | 0.937 |
| 700 | 39 | 0.933 | 0.929 | 0.931 | 0.908 | 0.935 | 0.921 | 0.907 | 0.936 | 0.921 | 0.908 | 0.935 | 0.921 | 0.906 | 0.940 | 0.923 | 0.909 | 0.939 | 0.924 | 0.973 | 0.856 | 0.911 | 0.979 | 0.897 | 0.936 | 0.951 | 0.923 | 0.937 |
| 1000 | 53 | 0.911 | 0.936 | 0.923 | 0.901 | 0.938 | 0.919 | 0.897 | 0.939 | 0.918 | 0.900 | 0.938 | 0.919 | 0.908 | 0.933 | 0.920 | 0.899 | 0.934 | 0.916 | 0.983 | 0.879 | 0.928 | 0.952 | 0.895 | 0.923 | 0.939 | 0.930 | 0.934 |
| 1500 | 77 | 0.904 | 0.939 | 0.921 | 0.908 | 0.938 | 0.923 | 0.899 | 0.939 | 0.918 | 0.906 | 0.940 | 0.923 | 0.906 | 0.935 | 0.920 | 0.908 | 0.937 | 0.922 | 0.984 | 0.874 | 0.925 | 0.964 | 0.913 | 0.938 | 0.939 | 0.930 | 0.935 |
| 2000 | 103 | 0.933 | 0.926 | 0.929 | 0.933 | 0.925 | 0.929 | 0.927 | 0.927 | 0.927 | 0.927 | 0.926 | 0.926 | 0.946 | 0.924 | 0.935 | 0.935 | 0.929 | 0.932 | 0.993 | 0.855 | 0.919 | 0.981 | 0.891 | 0.934 | 0.948 | 0.924 | 0.936 |
| 3000 | 147 | 0.940 | 0.923 | 0.931 | 0.935 | 0.923 | 0.929 | 0.933 | 0.925 | 0.929 | 0.932 | 0.924 | 0.928 | 0.937 | 0.933 | 0.935 | 0.934 | 0.933 | 0.934 | 0.993 | 0.849 | 0.915 | 0.967 | 0.893 | 0.929 | 0.942 | 0.932 | 0.937 |
| 5000 | 227 | 0.940 | 0.919 | 0.929 | 0.948 | 0.915 | 0.931 | 0.945 | 0.918 | 0.931 | 0.942 | 0.920 | 0.931 | 0.945 | 0.925 | 0.935 | 0.952 | 0.922 | 0.937 | 0.974 | 0.884 | 0.927 | 0.974 | 0.901 | 0.936 | 0.944 | 0.932 | 0.938 |
| 7000 | 312 | 0.939 | 0.929 | 0.934 | 0.939 | 0.926 | 0.933 | 0.942 | 0.923 | 0.933 | 0.937 | 0.926 | 0.932 | 0.949 | 0.928 | 0.938 | 0.946 | 0.929 | 0.937 | 0.996 | 0.771 | 0.869 | 0.968 | 0.913 | 0.939 | 0.941 | 0.934 | 0.938 |
| 10000 | 477 | 0.938 | 0.936 | 0.937 | 0.935 | 0.935 | 0.935 | 0.938 | 0.935 | 0.937 | 0.937 | 0.936 | 0.936 | 0.944 | 0.935 | 0.939 | 0.941 | 0.936 | 0.938 | 0.978 | 0.879 | 0.926 | 0.952 | 0.921 | 0.936 | 0.942 | 0.933 | 0.938 |
| 15000 | 695 | 0.942 | 0.933 | 0.938 | 0.942 | 0.932 | 0.937 | 0.939 | 0.933 | 0.936 | 0.941 | 0.933 | 0.937 | 0.947 | 0.936 | 0.941 | 0.947 | 0.936 | 0.941 | 0.987 | 0.879 | 0.930 | 0.949 | 0.922 | 0.935 | 0.944 | 0.936 | 0.940 |
| 25000 | 1186 | 0.947 | 0.934 | 0.941 | 0.951 | 0.928 | 0.939 | 0.950 | 0.923 | 0.936 | 0.950 | 0.925 | 0.937 | 0.952 | 0.927 | 0.940 | 0.952 | 0.930 | 0.941 | 0.981 | 0.879 | 0.927 | 0.967 | 0.914 | 0.940 | 0.951 | 0.929 | 0.940 |
| 30000 | 1434 | 0.944 | 0.934 | 0.939 | 0.951 | 0.927 | 0.939 | 0.949 | 0.924 | 0.936 | 0.949 | 0.926 | 0.937 | 0.953 | 0.930 | 0.941 | 0.953 | 0.931 | 0.942 | 0.971 | 0.895 | 0.931 | 0.974 | 0.906 | 0.939 | 0.953 | 0.925 | 0.939 |
| 50000 | 2382 | 0.945 | 0.938 | 0.942 | 0.947 | 0.936 | 0.942 | 0.950 | 0.933 | 0.941 | 0.949 | 0.933 | 0.941 | 0.953 | 0.936 | 0.944 | 0.953 | 0.935 | 0.944 | 0.963 | 0.882 | 0.921 | 0.956 | 0.920 | 0.938 | 0.949 | 0.930 | 0.939 |
| 75000 | 3612 | 0.945 | 0.940 | 0.943 | 0.950 | 0.936 | 0.943 | 0.950 | 0.935 | 0.943 | 0.947 | 0.935 | 0.941 | 0.950 | 0.939 | 0.944 | 0.950 | 0.938 | 0.944 | 0.983 | 0.876 | 0.926 | 0.974 | 0.907 | 0.939 | 0.945 | 0.938 | 0.941 |
| 100000 | 4820 | 0.942 | 0.943 | 0.943 | 0.948 | 0.939 | 0.943 | 0.946 | 0.936 | 0.941 | 0.947 | 0.936 | 0.941 | 0.948 | 0.938 | 0.943 | 0.949 | 0.938 | 0.943 | 0.976 | 0.899 | 0.936 | 0.971 | 0.901 | 0.934 | 0.941 | 0.938 | 0.939 |
| 150000 | 7194 | 0.947 | 0.939 | 0.943 | 0.950 | 0.937 | 0.944 | 0.952 | 0.936 | 0.944 | 0.951 | 0.936 | 0.944 | 0.951 | 0.935 | 0.943 | 0.952 | 0.935 | 0.944 | 0.989 | 0.874 | 0.928 | 0.966 | 0.914 | 0.940 | 0.944 | 0.935 | 0.940 |
| 200000 | 9649 | 0.950 | 0.939 | 0.944 | 0.954 | 0.937 | 0.945 | 0.953 | 0.935 | 0.944 | 0.953 | 0.934 | 0.943 | 0.952 | 0.936 | 0.944 | 0.953 | 0.936 | 0.944 | 0.992 | 0.867 | 0.925 | 0.919 | 0.942 | 0.930 | 0.943 | 0.938 | 0.941 |

*Table 21. Low vegetation class, Image A; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 19 | 0.676 | 0.683 | 0.679 | 0.694 | 0.699 | 0.696 | 0.692 | 0.701 | 0.697 | 0.693 | 0.703 | 0.698 | 0.723 | 0.645 | 0.682 | 0.703 | 0.652 | 0.677 | 0.608 | 0.443 | 0.512 | 0.785 | 0.644 | 0.707 | 0.658 | 0.758 | 0.705 |
| 200 | 45 | 0.652 | 0.711 | 0.680 | 0.664 | 0.712 | 0.687 | 0.659 | 0.720 | 0.688 | 0.658 | 0.715 | 0.685 | 0.699 | 0.733 | 0.716 | 0.720 | 0.736 | 0.728 | 0.626 | 0.548 | 0.584 | 0.733 | 0.709 | 0.721 | 0.683 | 0.728 | 0.705 |
| 300 | 55 | 0.711 | 0.676 | 0.693 | 0.708 | 0.678 | 0.693 | 0.728 | 0.678 | 0.702 | 0.727 | 0.680 | 0.703 | 0.799 | 0.685 | 0.738 | 0.782 | 0.686 | 0.731 | 0.748 | 0.472 | 0.578 | 0.786 | 0.672 | 0.725 | 0.699 | 0.722 | 0.711 |
| 500 | 86 | 0.735 | 0.690 | 0.712 | 0.730 | 0.701 | 0.716 | 0.735 | 0.697 | 0.715 | 0.736 | 0.699 | 0.717 | 0.798 | 0.715 | 0.754 | 0.795 | 0.716 | 0.754 | 0.788 | 0.600 | 0.681 | 0.778 | 0.662 | 0.715 | 0.696 | 0.740 | 0.717 |
| 700 | 125 | 0.764 | 0.710 | 0.736 | 0.751 | 0.711 | 0.731 | 0.735 | 0.718 | 0.726 | 0.731 | 0.720 | 0.725 | 0.762 | 0.729 | 0.745 | 0.776 | 0.726 | 0.750 | 0.804 | 0.674 | 0.733 | 0.822 | 0.669 | 0.738 | 0.716 | 0.716 | 0.716 |
| 1000 | 182 | 0.783 | 0.722 | 0.751 | 0.773 | 0.707 | 0.738 | 0.756 | 0.713 | 0.734 | 0.750 | 0.716 | 0.733 | 0.794 | 0.713 | 0.751 | 0.794 | 0.715 | 0.752 | 0.784 | 0.557 | 0.651 | 0.858 | 0.693 | 0.767 | 0.726 | 0.719 | 0.722 |
| 1500 | 273 | 0.830 | 0.685 | 0.751 | 0.799 | 0.685 | 0.738 | 0.787 | 0.685 | 0.732 | 0.779 | 0.688 | 0.731 | 0.819 | 0.700 | 0.755 | 0.818 | 0.700 | 0.755 | 0.872 | 0.586 | 0.701 | 0.877 | 0.677 | 0.764 | 0.721 | 0.732 | 0.726 |
| 2000 | 358 | 0.825 | 0.709 | 0.763 | 0.812 | 0.703 | 0.754 | 0.799 | 0.707 | 0.750 | 0.790 | 0.705 | 0.745 | 0.821 | 0.708 | 0.760 | 0.821 | 0.711 | 0.762 | 0.856 | 0.624 | 0.722 | 0.855 | 0.675 | 0.755 | 0.721 | 0.717 | 0.719 |
| 3000 | 553 | 0.826 | 0.721 | 0.770 | 0.807 | 0.709 | 0.755 | 0.792 | 0.707 | 0.747 | 0.786 | 0.705 | 0.743 | 0.811 | 0.708 | 0.756 | 0.812 | 0.713 | 0.759 | 0.826 | 0.625 | 0.712 | 0.841 | 0.716 | 0.773 | 0.729 | 0.724 | 0.726 |
| 5000 | 935 | 0.830 | 0.726 | 0.775 | 0.814 | 0.719 | 0.764 | 0.800 | 0.714 | 0.754 | 0.792 | 0.712 | 0.750 | 0.810 | 0.713 | 0.759 | 0.813 | 0.717 | 0.762 | 0.867 | 0.641 | 0.737 | 0.818 | 0.720 | 0.766 | 0.726 | 0.718 | 0.722 |
| 7000 | 1289 | 0.834 | 0.726 | 0.777 | 0.823 | 0.727 | 0.772 | 0.813 | 0.723 | 0.765 | 0.798 | 0.722 | 0.758 | 0.810 | 0.720 | 0.763 | 0.814 | 0.725 | 0.767 | 0.822 | 0.664 | 0.735 | 0.837 | 0.674 | 0.747 | 0.724 | 0.721 | 0.722 |
| 10000 | 1858 | 0.844 | 0.724 | 0.779 | 0.833 | 0.723 | 0.774 | 0.814 | 0.720 | 0.764 | 0.809 | 0.720 | 0.762 | 0.818 | 0.719 | 0.765 | 0.821 | 0.722 | 0.769 | 0.803 | 0.614 | 0.696 | 0.849 | 0.703 | 0.769 | 0.722 | 0.724 | 0.723 |
| 15000 | 2774 | 0.838 | 0.727 | 0.779 | 0.835 | 0.724 | 0.776 | 0.822 | 0.725 | 0.771 | 0.809 | 0.723 | 0.764 | 0.813 | 0.723 | 0.765 | 0.814 | 0.724 | 0.767 | 0.853 | 0.663 | 0.746 | 0.832 | 0.725 | 0.775 | 0.721 | 0.731 | 0.726 |
| 25000 | 4651 | 0.836 | 0.732 | 0.781 | 0.835 | 0.730 | 0.779 | 0.828 | 0.733 | 0.777 | 0.816 | 0.729 | 0.770 | 0.810 | 0.728 | 0.767 | 0.810 | 0.730 | 0.768 | 0.816 | 0.676 | 0.739 | 0.812 | 0.727 | 0.767 | 0.726 | 0.728 | 0.727 |
| 30000 | 5570 | 0.836 | 0.734 | 0.782 | 0.831 | 0.737 | 0.781 | 0.824 | 0.735 | 0.777 | 0.815 | 0.733 | 0.772 | 0.808 | 0.732 | 0.768 | 0.808 | 0.734 | 0.769 | 0.765 | 0.736 | 0.750 | 0.835 | 0.698 | 0.760 | 0.723 | 0.733 | 0.728 |
| 50000 | 9337 | 0.837 | 0.735 | 0.783 | 0.834 | 0.736 | 0.782 | 0.829 | 0.737 | 0.781 | 0.822 | 0.736 | 0.776 | 0.807 | 0.736 | 0.770 | 0.809 | 0.737 | 0.771 | 0.848 | 0.680 | 0.755 | 0.830 | 0.723 | 0.773 | 0.724 | 0.722 | 0.723 |
| 75000 | 14116 | 0.833 | 0.739 | 0.783 | 0.831 | 0.738 | 0.782 | 0.826 | 0.739 | 0.780 | 0.822 | 0.741 | 0.779 | 0.806 | 0.736 | 0.770 | 0.807 | 0.739 | 0.771 | 0.831 | 0.639 | 0.722 | 0.837 | 0.717 | 0.772 | 0.723 | 0.729 | 0.726 |
| 100000 | 18734 | 0.832 | 0.739 | 0.783 | 0.828 | 0.740 | 0.782 | 0.825 | 0.741 | 0.781 | 0.819 | 0.742 | 0.779 | 0.806 | 0.736 | 0.770 | 0.807 | 0.736 | 0.770 | 0.820 | 0.681 | 0.744 | 0.807 | 0.730 | 0.767 | 0.725 | 0.719 | 0.722 |
| 150000 | 28150 | 0.834 | 0.739 | 0.784 | 0.835 | 0.737 | 0.783 | 0.832 | 0.742 | 0.784 | 0.827 | 0.740 | 0.781 | 0.809 | 0.738 | 0.772 | 0.810 | 0.739 | 0.773 | 0.821 | 0.644 | 0.722 | 0.842 | 0.718 | 0.775 | 0.729 | 0.730 | 0.729 |
| 200000 | 37596 | 0.831 | 0.731 | 0.778 | 0.833 | 0.732 | 0.780 | 0.828 | 0.735 | 0.779 | 0.824 | 0.736 | 0.777 | 0.804 | 0.731 | 0.766 | 0.802 | 0.733 | 0.766 | 0.840 | 0.677 | 0.750 | 0.841 | 0.702 | 0.765 | 0.724 | 0.728 | 0.726 |

*Table 22. Low vegetation class, Image B; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 32 | 0.642 | 0.658 | 0.650 | 0.634 | 0.669 | 0.651 | 0.625 | 0.666 | 0.645 | 0.626 | 0.667 | 0.646 | 0.652 | 0.718 | 0.684 | 0.642 | 0.701 | 0.670 | 0.614 | 0.670 | 0.640 | 0.642 | 0.728 | 0.682 | 0.658 | 0.758 | 0.705 |
| 200 | 55 | 0.622 | 0.711 | 0.664 | 0.634 | 0.704 | 0.667 | 0.636 | 0.697 | 0.665 | 0.636 | 0.692 | 0.663 | 0.635 | 0.720 | 0.675 | 0.654 | 0.715 | 0.683 | 0.611 | 0.639 | 0.625 | 0.644 | 0.739 | 0.688 | 0.683 | 0.728 | 0.705 |
| 300 | 79 | 0.660 | 0.663 | 0.661 | 0.663 | 0.665 | 0.664 | 0.659 | 0.671 | 0.665 | 0.659 | 0.673 | 0.666 | 0.664 | 0.689 | 0.676 | 0.676 | 0.691 | 0.683 | 0.657 | 0.647 | 0.652 | 0.678 | 0.702 | 0.690 | 0.699 | 0.722 | 0.711 |
| 500 | 139 | 0.664 | 0.656 | 0.660 | 0.659 | 0.660 | 0.660 | 0.658 | 0.646 | 0.652 | 0.654 | 0.659 | 0.656 | 0.686 | 0.683 | 0.685 | 0.674 | 0.690 | 0.682 | 0.674 | 0.698 | 0.686 | 0.691 | 0.729 | 0.710 | 0.696 | 0.740 | 0.717 |
| 700 | 189 | 0.690 | 0.658 | 0.674 | 0.671 | 0.660 | 0.665 | 0.673 | 0.666 | 0.669 | 0.678 | 0.665 | 0.672 | 0.687 | 0.689 | 0.688 | 0.690 | 0.691 | 0.690 | 0.689 | 0.655 | 0.672 | 0.705 | 0.708 | 0.706 | 0.716 | 0.716 | 0.716 |
| 1000 | 271 | 0.699 | 0.690 | 0.695 | 0.686 | 0.680 | 0.683 | 0.684 | 0.678 | 0.681 | 0.688 | 0.675 | 0.681 | 0.721 | 0.672 | 0.696 | 0.715 | 0.684 | 0.699 | 0.694 | 0.675 | 0.685 | 0.723 | 0.716 | 0.719 | 0.726 | 0.719 | 0.722 |
| 1500 | 422 | 0.700 | 0.717 | 0.709 | 0.689 | 0.697 | 0.693 | 0.680 | 0.696 | 0.688 | 0.678 | 0.694 | 0.686 | 0.703 | 0.695 | 0.699 | 0.705 | 0.700 | 0.702 | 0.715 | 0.687 | 0.701 | 0.713 | 0.718 | 0.716 | 0.721 | 0.732 | 0.726 |
| 2000 | 556 | 0.705 | 0.714 | 0.709 | 0.697 | 0.697 | 0.697 | 0.690 | 0.691 | 0.690 | 0.688 | 0.685 | 0.687 | 0.704 | 0.694 | 0.699 | 0.708 | 0.697 | 0.702 | 0.702 | 0.678 | 0.690 | 0.715 | 0.724 | 0.720 | 0.721 | 0.717 | 0.719 |
| 3000 | 856 | 0.709 | 0.716 | 0.712 | 0.697 | 0.695 | 0.696 | 0.698 | 0.688 | 0.693 | 0.692 | 0.683 | 0.688 | 0.712 | 0.692 | 0.702 | 0.712 | 0.695 | 0.704 | 0.714 | 0.684 | 0.699 | 0.715 | 0.717 | 0.716 | 0.729 | 0.724 | 0.726 |
| 5000 | 1451 | 0.718 | 0.720 | 0.719 | 0.708 | 0.715 | 0.711 | 0.702 | 0.703 | 0.703 | 0.697 | 0.702 | 0.699 | 0.710 | 0.697 | 0.703 | 0.711 | 0.702 | 0.706 | 0.706 | 0.689 | 0.697 | 0.709 | 0.706 | 0.708 | 0.726 | 0.718 | 0.722 |
| 7000 | 2000 | 0.725 | 0.722 | 0.724 | 0.719 | 0.713 | 0.716 | 0.709 | 0.708 | 0.709 | 0.705 | 0.697 | 0.701 | 0.714 | 0.700 | 0.707 | 0.716 | 0.699 | 0.708 | 0.720 | 0.685 | 0.702 | 0.716 | 0.724 | 0.720 | 0.724 | 0.721 | 0.722 |
| 10000 | 2837 | 0.723 | 0.728 | 0.725 | 0.714 | 0.725 | 0.719 | 0.711 | 0.716 | 0.714 | 0.708 | 0.709 | 0.708 | 0.716 | 0.699 | 0.708 | 0.713 | 0.706 | 0.709 | 0.694 | 0.689 | 0.692 | 0.716 | 0.714 | 0.715 | 0.722 | 0.724 | 0.723 |
| 15000 | 4327 | 0.727 | 0.726 | 0.727 | 0.730 | 0.717 | 0.724 | 0.722 | 0.713 | 0.718 | 0.717 | 0.707 | 0.712 | 0.719 | 0.700 | 0.709 | 0.719 | 0.702 | 0.711 | 0.704 | 0.697 | 0.701 | 0.727 | 0.703 | 0.715 | 0.721 | 0.731 | 0.726 |
| 25000 | 7166 | 0.727 | 0.728 | 0.727 | 0.728 | 0.722 | 0.725 | 0.724 | 0.720 | 0.722 | 0.715 | 0.716 | 0.715 | 0.716 | 0.703 | 0.709 | 0.717 | 0.708 | 0.712 | 0.718 | 0.688 | 0.703 | 0.723 | 0.720 | 0.722 | 0.726 | 0.728 | 0.727 |
| 30000 | 8585 | 0.725 | 0.731 | 0.728 | 0.725 | 0.730 | 0.728 | 0.722 | 0.721 | 0.722 | 0.718 | 0.719 | 0.718 | 0.717 | 0.705 | 0.711 | 0.715 | 0.711 | 0.713 | 0.701 | 0.696 | 0.698 | 0.714 | 0.707 | 0.710 | 0.723 | 0.733 | 0.728 |
| 50000 | 14371 | 0.724 | 0.732 | 0.728 | 0.727 | 0.732 | 0.730 | 0.728 | 0.725 | 0.726 | 0.721 | 0.722 | 0.722 | 0.718 | 0.709 | 0.713 | 0.717 | 0.713 | 0.715 | 0.716 | 0.711 | 0.713 | 0.713 | 0.700 | 0.707 | 0.724 | 0.722 | 0.723 |
| 75000 | 21451 | 0.727 | 0.728 | 0.727 | 0.729 | 0.731 | 0.730 | 0.730 | 0.727 | 0.729 | 0.726 | 0.724 | 0.725 | 0.723 | 0.707 | 0.715 | 0.721 | 0.711 | 0.716 | 0.699 | 0.676 | 0.687 | 0.725 | 0.713 | 0.719 | 0.723 | 0.729 | 0.726 |
| 100000 | 28713 | 0.727 | 0.730 | 0.728 | 0.728 | 0.733 | 0.731 | 0.729 | 0.729 | 0.729 | 0.727 | 0.728 | 0.727 | 0.718 | 0.709 | 0.714 | 0.720 | 0.713 | 0.716 | 0.710 | 0.710 | 0.710 | 0.727 | 0.716 | 0.722 | 0.725 | 0.719 | 0.722 |
| 150000 | 43035 | 0.725 | 0.734 | 0.729 | 0.730 | 0.734 | 0.732 | 0.731 | 0.731 | 0.731 | 0.731 | 0.730 | 0.731 | 0.721 | 0.710 | 0.716 | 0.722 | 0.714 | 0.718 | 0.713 | 0.693 | 0.703 | 0.716 | 0.730 | 0.723 | 0.729 | 0.730 | 0.729 |
| 200000 | 57306 | 0.723 | 0.736 | 0.729 | 0.728 | 0.735 | 0.731 | 0.731 | 0.735 | 0.733 | 0.730 | 0.732 | 0.731 | 0.723 | 0.711 | 0.717 | 0.726 | 0.715 | 0.720 | 0.706 | 0.704 | 0.705 | 0.725 | 0.715 | 0.720 | 0.724 | 0.728 | 0.726 |

*Table 23. Low vegetation class, Image C; F-1 score (f1), precision (prec) and recall (rec), depending on the variant and training sample size (for the entire classification: total tss; for a given class tss)*

| total tss | class tss | XGBoost3 | | | XGBoost5 | | | XGBoost7 | | | XGBoost9 | | | RF50 | | | RF100 | | | SVM03 | | | SVM01 | | | SVM003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 | prec | rec | f1 |
| 100 | 32 | 0.656 | 0.765 | 0.707 | 0.651 | 0.744 | 0.695 | 0.643 | 0.735 | 0.686 | 0.643 | 0.735 | 0.686 | 0.666 | 0.781 | 0.719 | 0.679 | 0.766 | 0.720 | 0.540 | 0.721 | 0.618 | 0.741 | 0.711 | 0.725 | 0.775 | 0.723 | 0.748 |
| 200 | 57 | 0.744 | 0.743 | 0.743 | 0.739 | 0.749 | 0.744 | 0.741 | 0.738 | 0.739 | 0.742 | 0.739 | 0.740 | 0.751 | 0.769 | 0.760 | 0.745 | 0.777 | 0.760 | 0.741 | 0.673 | 0.705 | 0.688 | 0.742 | 0.714 | 0.777 | 0.742 | 0.759 |
| 300 | 83 | 0.737 | 0.738 | 0.738 | 0.742 | 0.740 | 0.741 | 0.745 | 0.738 | 0.742 | 0.740 | 0.743 | 0.742 | 0.752 | 0.756 | 0.754 | 0.748 | 0.764 | 0.756 | 0.743 | 0.692 | 0.716 | 0.761 | 0.729 | 0.745 | 0.775 | 0.749 | 0.761 |
| 500 | 147 | 0.724 | 0.768 | 0.745 | 0.713 | 0.770 | 0.740 | 0.716 | 0.762 | 0.738 | 0.716 | 0.760 | 0.737 | 0.729 | 0.781 | 0.754 | 0.734 | 0.781 | 0.757 | 0.706 | 0.747 | 0.726 | 0.741 | 0.779 | 0.759 | 0.741 | 0.788 | 0.764 |
| 700 | 213 | 0.734 | 0.776 | 0.754 | 0.735 | 0.767 | 0.751 | 0.736 | 0.772 | 0.753 | 0.739 | 0.770 | 0.754 | 0.740 | 0.792 | 0.765 | 0.738 | 0.797 | 0.766 | 0.732 | 0.775 | 0.753 | 0.747 | 0.788 | 0.767 | 0.745 | 0.799 | 0.771 |
| 1000 | 304 | 0.737 | 0.785 | 0.761 | 0.731 | 0.777 | 0.753 | 0.735 | 0.780 | 0.757 | 0.737 | 0.780 | 0.758 | 0.744 | 0.790 | 0.766 | 0.742 | 0.801 | 0.770 | 0.734 | 0.760 | 0.747 | 0.745 | 0.795 | 0.769 | 0.754 | 0.801 | 0.777 |
| 1500 | 437 | 0.758 | 0.782 | 0.770 | 0.754 | 0.768 | 0.761 | 0.752 | 0.765 | 0.759 | 0.751 | 0.766 | 0.759 | 0.757 | 0.786 | 0.771 | 0.759 | 0.785 | 0.772 | 0.745 | 0.770 | 0.757 | 0.758 | 0.778 | 0.768 | 0.769 | 0.790 | 0.780 |
| 2000 | 585 | 0.762 | 0.777 | 0.770 | 0.757 | 0.766 | 0.761 | 0.750 | 0.766 | 0.758 | 0.754 | 0.761 | 0.757 | 0.759 | 0.781 | 0.769 | 0.763 | 0.776 | 0.770 | 0.765 | 0.753 | 0.759 | 0.768 | 0.777 | 0.773 | 0.776 | 0.785 | 0.781 |
| 3000 | 892 | 0.759 | 0.806 | 0.782 | 0.752 | 0.792 | 0.771 | 0.749 | 0.783 | 0.766 | 0.747 | 0.778 | 0.762 | 0.762 | 0.790 | 0.776 | 0.759 | 0.797 | 0.777 | 0.750 | 0.765 | 0.757 | 0.721 | 0.814 | 0.765 | 0.768 | 0.802 | 0.785 |
| 5000 | 1499 | 0.759 | 0.812 | 0.785 | 0.754 | 0.803 | 0.778 | 0.754 | 0.793 | 0.773 | 0.750 | 0.787 | 0.768 | 0.758 | 0.795 | 0.776 | 0.758 | 0.800 | 0.778 | 0.742 | 0.798 | 0.769 | 0.763 | 0.803 | 0.783 | 0.767 | 0.809 | 0.787 |
| 7000 | 2081 | 0.771 | 0.805 | 0.787 | 0.768 | 0.797 | 0.782 | 0.764 | 0.788 | 0.775 | 0.760 | 0.783 | 0.771 | 0.769 | 0.784 | 0.776 | 0.768 | 0.787 | 0.778 | 0.754 | 0.766 | 0.760 | 0.772 | 0.796 | 0.784 | 0.777 | 0.798 | 0.787 |
| 10000 | 2992 | 0.777 | 0.798 | 0.787 | 0.770 | 0.797 | 0.783 | 0.768 | 0.788 | 0.778 | 0.763 | 0.785 | 0.774 | 0.769 | 0.785 | 0.777 | 0.767 | 0.791 | 0.778 | 0.770 | 0.787 | 0.778 | 0.776 | 0.795 | 0.785 | 0.778 | 0.799 | 0.788 |
| 15000 | 4453 | 0.775 | 0.803 | 0.789 | 0.770 | 0.802 | 0.786 | 0.767 | 0.793 | 0.780 | 0.765 | 0.788 | 0.776 | 0.771 | 0.784 | 0.777 | 0.771 | 0.789 | 0.780 | 0.746 | 0.759 | 0.753 | 0.770 | 0.794 | 0.782 | 0.778 | 0.801 | 0.789 |
| 25000 | 7337 | 0.778 | 0.802 | 0.790 | 0.772 | 0.805 | 0.788 | 0.768 | 0.801 | 0.784 | 0.766 | 0.792 | 0.779 | 0.770 | 0.786 | 0.778 | 0.771 | 0.788 | 0.779 | 0.775 | 0.776 | 0.775 | 0.773 | 0.803 | 0.788 | 0.778 | 0.798 | 0.788 |
| 30000 | 8859 | 0.775 | 0.809 | 0.791 | 0.772 | 0.810 | 0.791 | 0.770 | 0.803 | 0.786 | 0.768 | 0.796 | 0.782 | 0.773 | 0.786 | 0.779 | 0.772 | 0.790 | 0.781 | 0.753 | 0.788 | 0.770 | 0.772 | 0.805 | 0.788 | 0.779 | 0.800 | 0.790 |
| 50000 | 14746 | 0.781 | 0.802 | 0.791 | 0.779 | 0.805 | 0.792 | 0.775 | 0.804 | 0.789 | 0.773 | 0.798 | 0.785 | 0.775 | 0.786 | 0.780 | 0.774 | 0.789 | 0.781 | 0.769 | 0.789 | 0.779 | 0.778 | 0.797 | 0.788 | 0.780 | 0.799 | 0.789 |
| 75000 | 21993 | 0.781 | 0.803 | 0.792 | 0.779 | 0.806 | 0.792 | 0.778 | 0.802 | 0.790 | 0.776 | 0.798 | 0.787 | 0.776 | 0.783 | 0.779 | 0.776 | 0.788 | 0.782 | 0.762 | 0.763 | 0.762 | 0.784 | 0.789 | 0.786 | 0.782 | 0.797 | 0.790 |
| 100000 | 29291 | 0.782 | 0.803 | 0.792 | 0.780 | 0.806 | 0.793 | 0.780 | 0.803 | 0.791 | 0.777 | 0.801 | 0.789 | 0.776 | 0.784 | 0.780 | 0.776 | 0.788 | 0.782 | 0.781 | 0.774 | 0.778 | 0.781 | 0.795 | 0.788 | 0.783 | 0.798 | 0.791 |
| 150000 | 44139 | 0.781 | 0.804 | 0.792 | 0.780 | 0.805 | 0.792 | 0.779 | 0.804 | 0.792 | 0.780 | 0.802 | 0.790 | 0.776 | 0.786 | 0.781 | 0.775 | 0.789 | 0.782 | 0.768 | 0.783 | 0.775 | 0.778 | 0.790 | 0.784 | 0.782 | 0.797 | 0.789 |
| 200000 | 58931 | 0.780 | 0.806 | 0.793 | 0.779 | 0.810 | 0.794 | 0.780 | 0.807 | 0.793 | 0.779 | 0.805 | 0.792 | 0.775 | 0.786 | 0.781 | 0.775 | 0.792 | 0.783 | 0.759 | 0.778 | 0.769 | 0.775 | 0.796 | 0.786 | 0.782 | 0.801 | 0.791 |

*Table 24. Image A; Cohen's kappa coefficient (kappa) and overall accuracy (OA) depending on the variant and training sample size (total tss)*

| total tss | XGBoost3 | | XGBoost5 | | XGBoost7 | | XGBoost9 | | RF50 | | RF100 | | SVM03 | | SVM01 | | SVM003 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa |
| 100 | 0.657 | 0.521 | 0.665 | 0.538 | 0.670 | 0.544 | 0.671 | 0.545 | 0.665 | 0.536 | 0.658 | 0.525 | 0.599 | 0.433 | 0.668 | 0.542 | 0.717 | 0.609 |
| 200 | 0.686 | 0.566 | 0.686 | 0.568 | 0.686 | 0.568 | 0.687 | 0.570 | 0.703 | 0.591 | 0.708 | 0.597 | 0.635 | 0.477 | 0.685 | 0.559 | 0.749 | 0.651 |
| 300 | 0.704 | 0.586 | 0.703 | 0.585 | 0.706 | 0.591 | 0.705 | 0.590 | 0.722 | 0.613 | 0.719 | 0.609 | 0.653 | 0.497 | 0.722 | 0.610 | 0.747 | 0.645 |
| 500 | 0.719 | 0.607 | 0.717 | 0.604 | 0.719 | 0.607 | 0.719 | 0.607 | 0.739 | 0.635 | 0.739 | 0.635 | 0.675 | 0.524 | 0.726 | 0.611 | 0.758 | 0.661 |
| 700 | 0.730 | 0.622 | 0.724 | 0.614 | 0.725 | 0.616 | 0.724 | 0.616 | 0.737 | 0.632 | 0.740 | 0.636 | 0.700 | 0.565 | 0.739 | 0.631 | 0.759 | 0.661 |
| 1000 | 0.742 | 0.638 | 0.736 | 0.631 | 0.732 | 0.626 | 0.730 | 0.624 | 0.749 | 0.647 | 0.749 | 0.648 | 0.660 | 0.499 | 0.756 | 0.654 | 0.765 | 0.667 |
| 1500 | 0.750 | 0.648 | 0.741 | 0.637 | 0.737 | 0.631 | 0.736 | 0.631 | 0.753 | 0.654 | 0.754 | 0.655 | 0.707 | 0.572 | 0.760 | 0.661 | 0.767 | 0.671 |
| 2000 | 0.756 | 0.656 | 0.750 | 0.647 | 0.747 | 0.644 | 0.744 | 0.640 | 0.757 | 0.658 | 0.758 | 0.660 | 0.723 | 0.597 | 0.753 | 0.653 | 0.771 | 0.676 |
| 3000 | 0.766 | 0.669 | 0.756 | 0.657 | 0.752 | 0.651 | 0.749 | 0.648 | 0.761 | 0.664 | 0.763 | 0.667 | 0.727 | 0.605 | 0.767 | 0.671 | 0.775 | 0.682 |
| 5000 | 0.773 | 0.680 | 0.766 | 0.670 | 0.760 | 0.663 | 0.757 | 0.659 | 0.765 | 0.670 | 0.768 | 0.674 | 0.742 | 0.626 | 0.770 | 0.676 | 0.778 | 0.686 |
| 7000 | 0.775 | 0.683 | 0.773 | 0.680 | 0.767 | 0.673 | 0.763 | 0.667 | 0.769 | 0.676 | 0.771 | 0.679 | 0.742 | 0.632 | 0.760 | 0.660 | 0.779 | 0.688 |
| 10000 | 0.777 | 0.686 | 0.776 | 0.685 | 0.770 | 0.677 | 0.767 | 0.672 | 0.771 | 0.678 | 0.772 | 0.681 | 0.728 | 0.610 | 0.770 | 0.675 | 0.779 | 0.688 |
| 15000 | 0.780 | 0.689 | 0.779 | 0.690 | 0.775 | 0.684 | 0.770 | 0.678 | 0.772 | 0.680 | 0.773 | 0.682 | 0.727 | 0.606 | 0.773 | 0.681 | 0.781 | 0.690 |
| 25000 | 0.780 | 0.690 | 0.782 | 0.693 | 0.780 | 0.691 | 0.775 | 0.685 | 0.773 | 0.681 | 0.774 | 0.684 | 0.746 | 0.639 | 0.772 | 0.678 | 0.781 | 0.690 |
| 30000 | 0.780 | 0.690 | 0.783 | 0.695 | 0.781 | 0.692 | 0.777 | 0.686 | 0.774 | 0.683 | 0.775 | 0.685 | 0.743 | 0.636 | 0.769 | 0.672 | 0.781 | 0.691 |
| 50000 | 0.781 | 0.692 | 0.785 | 0.698 | 0.784 | 0.697 | 0.781 | 0.693 | 0.776 | 0.687 | 0.778 | 0.689 | 0.738 | 0.624 | 0.769 | 0.674 | 0.782 | 0.692 |
| 75000 | 0.782 | 0.693 | 0.786 | 0.700 | 0.786 | 0.700 | 0.785 | 0.698 | 0.778 | 0.689 | 0.779 | 0.690 | 0.743 | 0.632 | 0.767 | 0.669 | 0.783 | 0.694 |
| 100000 | 0.783 | 0.694 | 0.787 | 0.701 | 0.787 | 0.701 | 0.785 | 0.699 | 0.778 | 0.688 | 0.779 | 0.691 | 0.737 | 0.624 | 0.771 | 0.678 | 0.782 | 0.692 |
| 150000 | 0.783 | 0.695 | 0.788 | 0.702 | 0.789 | 0.704 | 0.787 | 0.702 | 0.778 | 0.689 | 0.779 | 0.691 | 0.744 | 0.633 | 0.773 | 0.679 | 0.784 | 0.695 |
| 200000 | 0.781 | 0.691 | 0.786 | 0.699 | 0.788 | 0.703 | 0.786 | 0.700 | 0.775 | 0.684 | 0.775 | 0.685 | 0.738 | 0.635 | 0.756 | 0.653 | 0.781 | 0.690 |

*Table 25. Image B; Cohen's kappa coefficient (kappa) and overall accuracy (OA) depending on the variant and training sample size (total tss)*

| total tss | XGBoost3 | | XGBoost5 | | XGBoost7 | | XGBoost9 | | RF50 | | RF100 | | SVM03 | | SVM01 | | SVM003 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa |
| 100 | 0.633 | 0.503 | 0.632 | 0.502 | 0.630 | 0.497 | 0.631 | 0.499 | 0.656 | 0.533 | 0.651 | 0.526 | 0.615 | 0.465 | 0.670 | 0.551 | 0.687 | 0.575 |
| 200 | 0.638 | 0.516 | 0.642 | 0.521 | 0.640 | 0.520 | 0.640 | 0.520 | 0.668 | 0.552 | 0.666 | 0.553 | 0.611 | 0.465 | 0.684 | 0.572 | 0.702 | 0.599 |
| 300 | 0.666 | 0.551 | 0.666 | 0.551 | 0.664 | 0.549 | 0.666 | 0.551 | 0.674 | 0.561 | 0.685 | 0.575 | 0.652 | 0.523 | 0.689 | 0.579 | 0.713 | 0.613 |
| 500 | 0.685 | 0.576 | 0.683 | 0.573 | 0.678 | 0.567 | 0.679 | 0.569 | 0.695 | 0.589 | 0.694 | 0.587 | 0.652 | 0.520 | 0.707 | 0.604 | 0.724 | 0.629 |
| 700 | 0.699 | 0.594 | 0.691 | 0.582 | 0.689 | 0.581 | 0.690 | 0.582 | 0.705 | 0.601 | 0.709 | 0.606 | 0.670 | 0.547 | 0.713 | 0.611 | 0.730 | 0.634 |
| 1000 | 0.713 | 0.612 | 0.706 | 0.602 | 0.704 | 0.600 | 0.704 | 0.600 | 0.716 | 0.617 | 0.716 | 0.616 | 0.679 | 0.561 | 0.718 | 0.619 | 0.731 | 0.637 |
| 1500 | 0.721 | 0.623 | 0.710 | 0.609 | 0.706 | 0.604 | 0.704 | 0.601 | 0.716 | 0.618 | 0.720 | 0.622 | 0.682 | 0.562 | 0.723 | 0.625 | 0.741 | 0.650 |
| 2000 | 0.726 | 0.630 | 0.715 | 0.616 | 0.710 | 0.609 | 0.707 | 0.605 | 0.719 | 0.621 | 0.722 | 0.625 | 0.689 | 0.576 | 0.725 | 0.628 | 0.738 | 0.646 |
| 3000 | 0.733 | 0.640 | 0.721 | 0.624 | 0.718 | 0.620 | 0.715 | 0.616 | 0.726 | 0.631 | 0.727 | 0.633 | 0.684 | 0.567 | 0.725 | 0.629 | 0.742 | 0.652 |
| 5000 | 0.740 | 0.649 | 0.732 | 0.639 | 0.724 | 0.628 | 0.722 | 0.625 | 0.727 | 0.632 | 0.730 | 0.636 | 0.688 | 0.573 | 0.714 | 0.611 | 0.740 | 0.649 |
| 7000 | 0.743 | 0.653 | 0.736 | 0.644 | 0.730 | 0.636 | 0.725 | 0.629 | 0.730 | 0.636 | 0.732 | 0.640 | 0.702 | 0.593 | 0.726 | 0.628 | 0.743 | 0.653 |
| 10000 | 0.745 | 0.656 | 0.740 | 0.649 | 0.735 | 0.642 | 0.730 | 0.636 | 0.733 | 0.641 | 0.735 | 0.642 | 0.682 | 0.564 | 0.722 | 0.623 | 0.744 | 0.654 |
| 15000 | 0.747 | 0.658 | 0.745 | 0.656 | 0.740 | 0.649 | 0.735 | 0.643 | 0.735 | 0.643 | 0.737 | 0.645 | 0.695 | 0.583 | 0.731 | 0.636 | 0.748 | 0.659 |
| 25000 | 0.750 | 0.662 | 0.749 | 0.661 | 0.745 | 0.657 | 0.740 | 0.650 | 0.737 | 0.646 | 0.739 | 0.648 | 0.703 | 0.594 | 0.734 | 0.640 | 0.749 | 0.661 |
| 30000 | 0.751 | 0.663 | 0.750 | 0.663 | 0.746 | 0.658 | 0.743 | 0.654 | 0.738 | 0.648 | 0.740 | 0.650 | 0.697 | 0.585 | 0.727 | 0.633 | 0.748 | 0.659 |
| 50000 | 0.751 | 0.664 | 0.753 | 0.667 | 0.751 | 0.665 | 0.747 | 0.659 | 0.741 | 0.651 | 0.742 | 0.653 | 0.706 | 0.599 | 0.726 | 0.628 | 0.747 | 0.658 |
| 75000 | 0.751 | 0.664 | 0.754 | 0.668 | 0.753 | 0.667 | 0.750 | 0.663 | 0.743 | 0.653 | 0.744 | 0.655 | 0.694 | 0.583 | 0.735 | 0.642 | 0.750 | 0.662 |
| 100000 | 0.753 | 0.666 | 0.755 | 0.670 | 0.754 | 0.669 | 0.752 | 0.666 | 0.743 | 0.654 | 0.745 | 0.656 | 0.696 | 0.583 | 0.737 | 0.645 | 0.746 | 0.658 |
| 150000 | 0.754 | 0.668 | 0.758 | 0.673 | 0.757 | 0.673 | 0.757 | 0.672 | 0.744 | 0.656 | 0.746 | 0.659 | 0.705 | 0.598 | 0.732 | 0.639 | 0.751 | 0.664 |
| 200000 | 0.754 | 0.668 | 0.757 | 0.673 | 0.758 | 0.674 | 0.757 | 0.672 | 0.745 | 0.657 | 0.747 | 0.660 | 0.706 | 0.599 | 0.735 | 0.642 | 0.750 | 0.662 |

*Table 26. Image C; Cohen's kappa coefficient (kappa) and overall accuracy (OA) depending on the variant and training sample size (total tss)*

| total tss | XGBoost3 | | XGBoost5 | | XGBoost7 | | XGBoost9 | | RF50 | | RF100 | | SVM03 | | SVM01 | | SVM003 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa | OA | kappa |
| 100 | 0.715 | 0.616 | 0.710 | 0.610 | 0.704 | 0.601 | 0.704 | 0.601 | 0.721 | 0.624 | 0.724 | 0.628 | 0.646 | 0.518 | 0.720 | 0.625 | 0.750 | 0.666 |
| 200 | 0.748 | 0.663 | 0.737 | 0.648 | 0.735 | 0.645 | 0.735 | 0.646 | 0.748 | 0.664 | 0.747 | 0.662 | 0.694 | 0.592 | 0.723 | 0.628 | 0.759 | 0.677 |
| 300 | 0.754 | 0.672 | 0.757 | 0.676 | 0.759 | 0.679 | 0.757 | 0.676 | 0.755 | 0.673 | 0.760 | 0.679 | 0.714 | 0.618 | 0.753 | 0.669 | 0.767 | 0.688 |
| 500 | 0.765 | 0.686 | 0.760 | 0.680 | 0.760 | 0.680 | 0.759 | 0.679 | 0.776 | 0.700 | 0.773 | 0.697 | 0.741 | 0.652 | 0.767 | 0.688 | 0.787 | 0.714 |
| 700 | 0.774 | 0.698 | 0.771 | 0.694 | 0.773 | 0.697 | 0.774 | 0.698 | 0.783 | 0.711 | 0.783 | 0.709 | 0.738 | 0.648 | 0.775 | 0.699 | 0.792 | 0.721 |
| 1000 | 0.782 | 0.709 | 0.777 | 0.702 | 0.779 | 0.705 | 0.779 | 0.705 | 0.786 | 0.714 | 0.788 | 0.717 | 0.746 | 0.660 | 0.776 | 0.700 | 0.791 | 0.720 |
| 1500 | 0.790 | 0.719 | 0.783 | 0.711 | 0.782 | 0.709 | 0.782 | 0.709 | 0.792 | 0.723 | 0.793 | 0.724 | 0.754 | 0.671 | 0.782 | 0.708 | 0.798 | 0.730 |
| 2000 | 0.790 | 0.720 | 0.784 | 0.712 | 0.782 | 0.710 | 0.782 | 0.709 | 0.791 | 0.721 | 0.791 | 0.722 | 0.755 | 0.672 | 0.779 | 0.704 | 0.797 | 0.729 |
| 3000 | 0.798 | 0.731 | 0.792 | 0.722 | 0.787 | 0.716 | 0.786 | 0.714 | 0.796 | 0.728 | 0.797 | 0.729 | 0.760 | 0.679 | 0.782 | 0.707 | 0.800 | 0.733 |
| 5000 | 0.801 | 0.735 | 0.797 | 0.729 | 0.793 | 0.723 | 0.789 | 0.719 | 0.796 | 0.728 | 0.797 | 0.729 | 0.766 | 0.688 | 0.794 | 0.725 | 0.805 | 0.740 |
| 7000 | 0.805 | 0.740 | 0.801 | 0.734 | 0.796 | 0.728 | 0.792 | 0.723 | 0.797 | 0.729 | 0.798 | 0.730 | 0.758 | 0.677 | 0.795 | 0.727 | 0.804 | 0.737 |
| 10000 | 0.806 | 0.742 | 0.803 | 0.738 | 0.799 | 0.732 | 0.796 | 0.728 | 0.798 | 0.731 | 0.799 | 0.732 | 0.771 | 0.696 | 0.787 | 0.716 | 0.807 | 0.742 |
| 15000 | 0.809 | 0.746 | 0.807 | 0.742 | 0.802 | 0.737 | 0.799 | 0.732 | 0.801 | 0.734 | 0.803 | 0.737 | 0.760 | 0.680 | 0.795 | 0.727 | 0.809 | 0.745 |
| 25000 | 0.812 | 0.749 | 0.811 | 0.748 | 0.807 | 0.743 | 0.804 | 0.738 | 0.803 | 0.737 | 0.805 | 0.740 | 0.765 | 0.686 | 0.799 | 0.732 | 0.805 | 0.740 |
| 30000 | 0.813 | 0.750 | 0.813 | 0.751 | 0.810 | 0.746 | 0.806 | 0.741 | 0.805 | 0.740 | 0.806 | 0.741 | 0.775 | 0.699 | 0.796 | 0.727 | 0.807 | 0.742 |
| 50000 | 0.814 | 0.752 | 0.814 | 0.752 | 0.812 | 0.750 | 0.809 | 0.746 | 0.805 | 0.741 | 0.806 | 0.742 | 0.761 | 0.681 | 0.798 | 0.730 | 0.808 | 0.743 |
| 75000 | 0.814 | 0.752 | 0.815 | 0.754 | 0.814 | 0.752 | 0.811 | 0.748 | 0.806 | 0.742 | 0.808 | 0.744 | 0.760 | 0.680 | 0.795 | 0.726 | 0.811 | 0.748 |
| 100000 | 0.815 | 0.753 | 0.816 | 0.755 | 0.815 | 0.753 | 0.813 | 0.751 | 0.807 | 0.743 | 0.808 | 0.744 | 0.777 | 0.703 | 0.796 | 0.728 | 0.810 | 0.747 |
| 150000 | 0.814 | 0.753 | 0.816 | 0.755 | 0.816 | 0.754 | 0.815 | 0.753 | 0.808 | 0.744 | 0.809 | 0.745 | 0.762 | 0.684 | 0.797 | 0.728 | 0.809 | 0.745 |
| 200000 | 0.815 | 0.753 | 0.817 | 0.756 | 0.817 | 0.756 | 0.816 | 0.755 | 0.808 | 0.744 | 0.810 | 0.746 | 0.768 | 0.691 | 0.797 | 0.730 | 0.809 | 0.745 |